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ABSTRACT

The National Center for Higher Education Management Systems (NCHEMS) Student Flow Model (SFM) IA is a tool for analyzing the historical movement of students between the various fields of study and student levels in an institution and for estimating the future enrollments in each student program (or field of study) and student level combination in the institution. Modular in concept, the system can be implemented in phases to permit an institution to begin using its results immediately and to incorporate additional levels of analysis as needed and as the required input data become available. SFM-IA can be used alone in an independent analysis of student progression through the institution. Schools also using the NCHEMS Resource Requirements Prediction Model (RRPM) 1.6 will find SFM-IA useful in projecting future enrollments for RRPM cost projection purposes. Included in this document is a description of the SFM-IA computer programs together with the procedures for gathering and organizing the data necessary to use the various modules. (Author/DGC)

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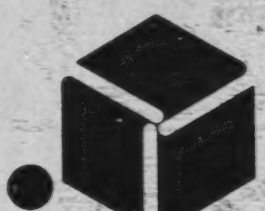
STUDENT FLOW MODEL SFM-1A: INTRODUCTION

PRELIMINARY DRAFT
for review purposes only

Preliminary Edition
Technical Report 41A

National Center for Higher Education Management Systems at WICHE



IR 002 460

INTRODUCTION TO THE

STUDENT FLOW MODEL SFM-IA

Technical Report No. 41A

Richard S. Johnson

U.S. DEPARTMENT OF HEALTH,
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May 1974

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ABSTRACT

The NCHEMS Student Flow Model SFM-IA is a tool for analyzing the historical movement of students between the various fields of study and student levels in an institution and for estimating the future enrollments in each student program (or field of study) and student level combination in the institution. Modular in concept, the system can be implemented in phases to permit an institution to begin using its results immediately and to incorporate additional levels of analysis as needed and as the required input data become available.

The Student Flow Model SFM-IA can be used alone in an independent analysis of student progression through the institution. Schools also using the NCHEMS Resource Requirements Prediction Model 1.6 (RRPM) will find SFM-IA useful in projecting future student enrollments for RRPM cost projection purposes.

WARRANTY

This document has not been reviewed or approved for publication by the staff of NCHEMS or the NCHEMS Board of Directors. It does not necessarily reflect the official positions or policies of the National Institute of Education, NCHEMS, or WICHE.

This document contains a detailed description of the computer programs and their limitations. NCHEMS has released these programs as Type II software. The following description of a Type II program product is contained in the NCHEMS Policies and Procedures Manual:

A. Type II: NCHEMS Early Release Programs

Software in this category will contain no NCHEMS warranty of any type. In addition, the standard disclaimers limiting NCHEMS liability will also be present. In general, the software will be programs that have not yet been adequately tested or documented for release as Type I software. Programs released under Type II will not be kept up to date, nor will there be any guarantee that two separate distributions of the same program will agree, since they will be simply a release of the program at some early stage of development.

Type II software will be released to individual users after approval by the Director.

NCHEMS support for software released under Type II will be limited to telephone and letter correspondence concerning implementation or utilization of the software. No on-site assistance is anticipated for software released under Type II, and response will be limited to a "time available" basis.

ACKNOWLEDGMENTS

The development of the NCHEMS Student Flow Model represents the efforts of many individuals. In particular, we are indebted to the members of the Student Flow Model Task Force, who generously contributed their time and efforts to the preliminary design of the model. These individuals are:

Dr. Robert F. Adams	University of California, Santa Cruz, Calif.
Dr. James D. Bruce	Massachusetts Institute of Technology, Cambridge, Mass.
Mr. Gary Cooley	*State University of New York-Central Office Buffalo, N.Y.
Dr. T. E. Kellogg	*University of Minnesota, Minneapolis, Minn.
Dr. Malcolm McAfee	University Without Walls, Berkeley, Calif.
Dr. John Phay	*University of Mississippi, University, Miss.
Dr. Jack E. Rossmann	*Macalester College, St. Paul, Minn.

Institutions noted by an asterisk served as pilot test institutions for the model, as did Blackhawk College in Moline, Illinois.

In addition to the task force members and formal pilot test institutions, a number of individuals and institutions have provided valuable feedback and use of resources during the development of the system. Among these are:

- Analytic Studies Division, California State University & Colleges
- California State University at Fullerton, Fullerton, California
- California State University at Humboldt, Humboldt, California
- Delta College, Bay City, Michigan
- Kearney State College, Kearney, Nebraska
- Rhode Island Junior College, Warwick, Rhode Island
- State University of New York at Plattsburg, Plattsburg, New York
- Triton College, River Grove, Illinois
- University of Massachusetts at Amherst, Amherst, Massachusetts
- University of Northern Colorado, Greeley, Colorado
- Weber State College, Ogden, Utah

John Busby of NCHEMS wrote the computer programs for the system and the accompanying documentation, Student Flow Model SFM-IA System Documentation, Technical Report 41B. Many other individuals at NCHEMS also have offered valuable guidance during the course of the project. Among these are: David Clark, Michael Haight, Dr. Robert Huff, Dr. Wayne Kirschling, Ron Martin, Richard Williams, and Dr. Paul Wing.

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SECTION I

PURPOSE

In the past several years many institutions have developed ways to use analytical tools in their planning and management functions. For many institutions the development of these methods has been facilitated by computer models such as NCHEMS's Resource Requirements Prediction Model 1.6 (RRPM) and its supporting subsystems, the Induced Course Load Matrix Generator (ICLM) and the Faculty Data Generator (FDG). The analysis most institutions undertake typically begins with a study of the costs of instruction for the current or immediately preceding year. In this analysis, both the direct and full costs of a credit hour in each discipline and the cost per student in each Program/Student Level combination usually are determined. After these results have been obtained and analyzed by institutional personnel, many institutions proceed to use the projective capabilities of the RRPM 1.6 model. In this mode RRPM estimates future unit and total costs of instruction for each discipline and program based on a number of planning parameters or assumptions input to the model. One of the most important estimates that must be made for projection purposes is the number of students who will be enrolled in each Program/Student Level combination in the future. The NCHEMS Student Flow Model, SFM-IA is designed to assist in making these projections.

SECTION II

STUDENT FLOW MODEL SFM-IA LOGIC (CONCEPTUAL)

The Student Flow process can be divided conveniently into two primary modules:

- Admissions - the enrollment of new or returning students in the institution at the beginning of each term.
- Transition between terms - students enrolled in one term either leave the institution (they graduate or drop out) or else they continue in the institution into the next term.

The logic associated with each of these modules is described below. Because many aspects of the Student Flow structure and process can be expressed in alternate ways, the description below begins with a general overview, proceeds to more specific examples of "simple cases," and then describes a number of the options and alternatives available.

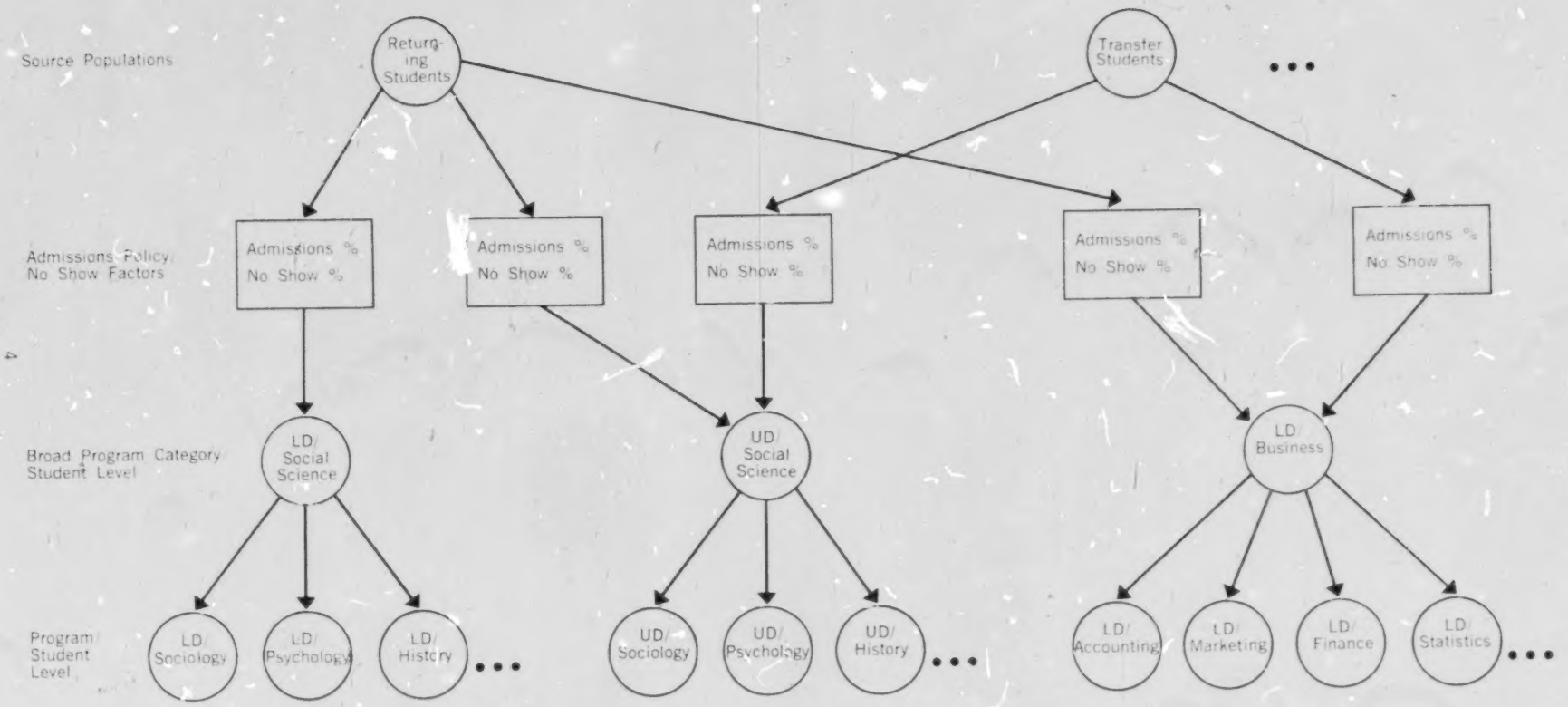
Overview

As shown in Figure 1, new or returning students* from a Source Population (for example, all transfer students of Brighton High School) progress first through an admissions policy and no-show enrollment process. Some applicants may not be admitted because of ceilings on admissions. Of the students projected to be admitted, some students might not actually enroll at the

*"Returning students" in this system refers to students who have been enrolled in the institution but not in the immediately preceding term. Continuing students are those students who continue form one term to the next.

Figure 1

Example of ADMISSIONS MODULE Logic

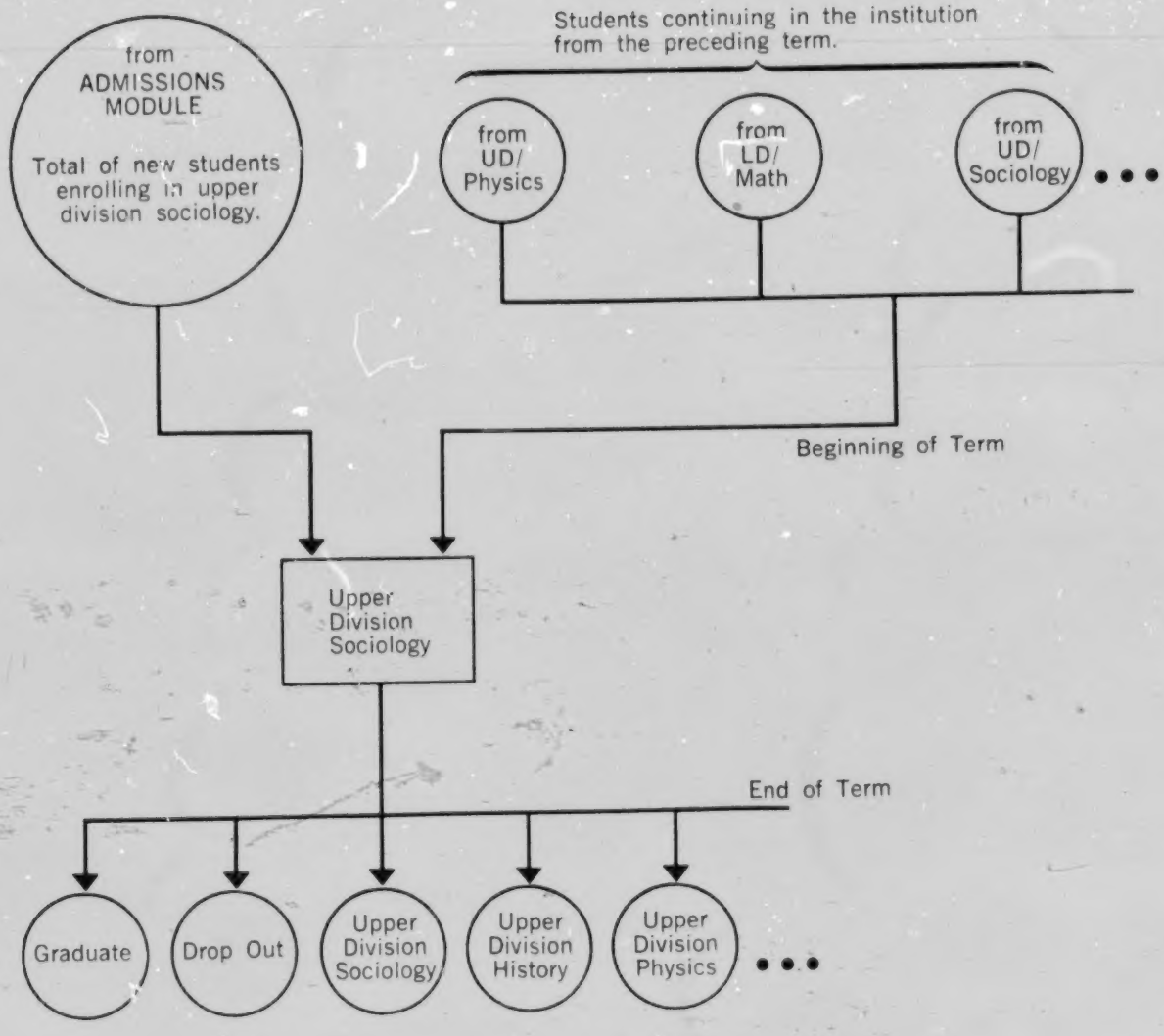


beginning of the term (they will be "no shows"). The remaining students are projected to first enroll in Broad Program Category/Student Level combinations (for example, upper division Social Science, lower division School of Business). These projected new enrollees then are distributed to become projected new enrollees in specific Program/Student Level combinations (for example, lower division Sociology, upper division Accounting).

Figure 2 illustrates the second primary phase of the student flow analysis --the transition of students between terms. At the beginning of a term the total number of students projected in each Program/Student Level combination is determined by adding the new students projected to enroll in the Program/Student Level, the students projected to continue in the Program/Student Level (from the preceding term), and the students projected to transfer to the Program/Student Level. This total is the number of projected enrollments in the Program/Student Level at the beginning of the term. It then is assumed that no activity occurs during the term. The next calculation is made immediately after the term is over. This calculation estimates the number of students in the Program/Student Level who will exit from the institution (for example, drop out, graduate, transfer to another institution) and also estimates the number of students who will continue into each Program/Student Level combination in the next term.

Figure 2

Example of TRANSITION MODULE Logic



This analysis then is repeated for each Program/Student Level. The resulting estimates of continuing students are reorganized to form the continuing students in each Program/Student Level for the beginning of the next term and the model is ready to analyze another term.

The Student Flow Model computer software has two modules, ADMISSIONS and TRANSITION, that correspond to these logical modules.

As these overview figures illustrate, the user must supply a substantial amount of input data to implement the Student Flow Model. The kinds of data used can be summarized into the following categories:

- Number of new applicants in each Source Population
- Participation patterns from Source Populations
- Admissions policies
- No-show rates
- Distribution patterns from Broad Program Category/Student Level to Program/Student Level
- Transition patterns from each Program/Student Level
- Beginning number of students in each Program/Student Level

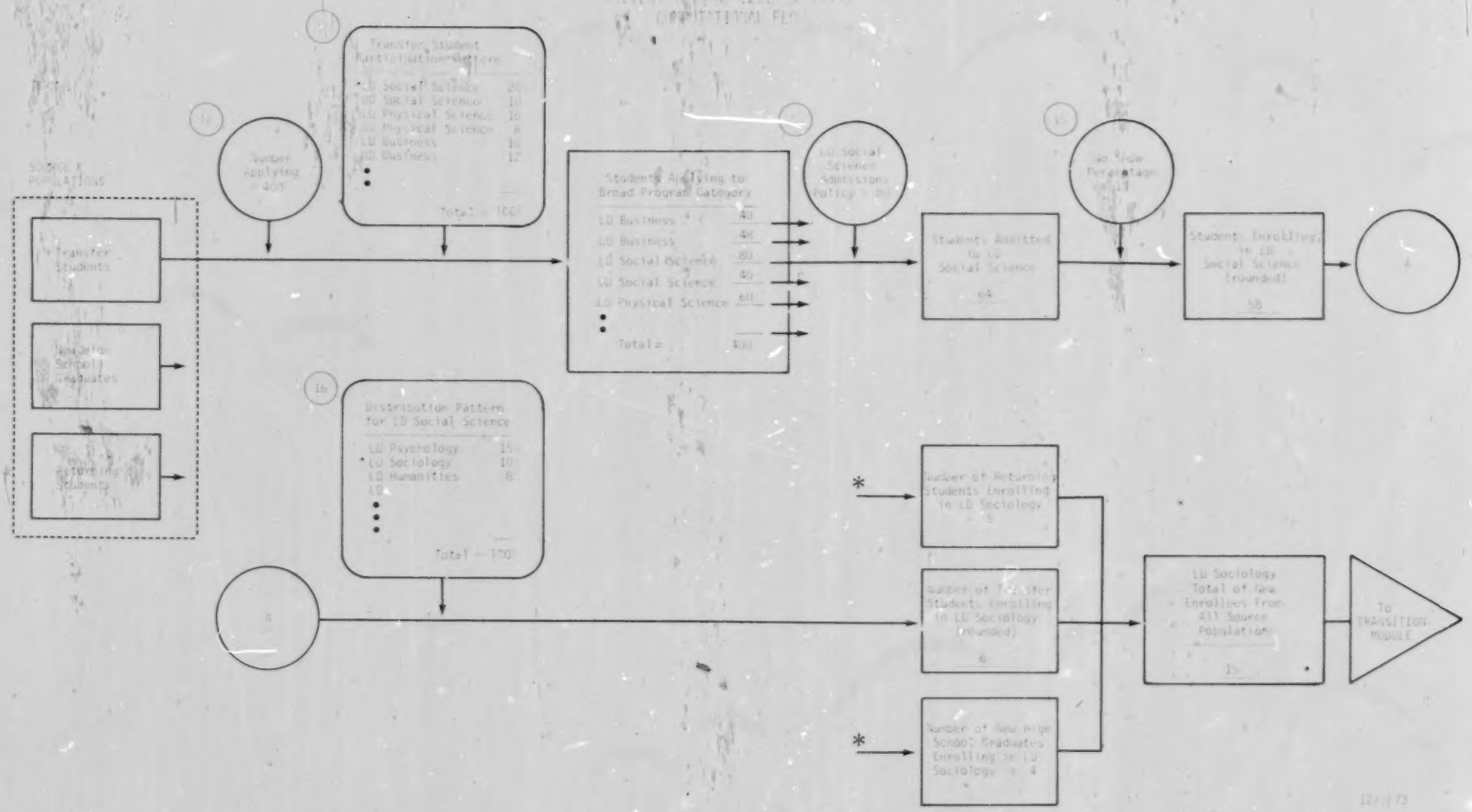
Some users may wish to perform fall term to fall term analyses and therefore would require just one "set" of the data shown above. Other users may wish to make term by term analyses (for example, fall to spring and spring to fall) and would require the set of data shown above for each term, thereby doubling or tripling the data requirements. To facilitate developing the required input data, the Student Flow Model has a third module, the HISTORY MODULE, that analyzes an institution's historical records to develop a base

set of data for use by the ADMISSIONS and TRANSITION modules. These historical data may be modified to reflect the impact of new programs, programs that have been dropped, or anticipated student flow patterns that are different from historical patterns. The HISTORY MODULE is described in more detail in the next two sections.

Computational Flow

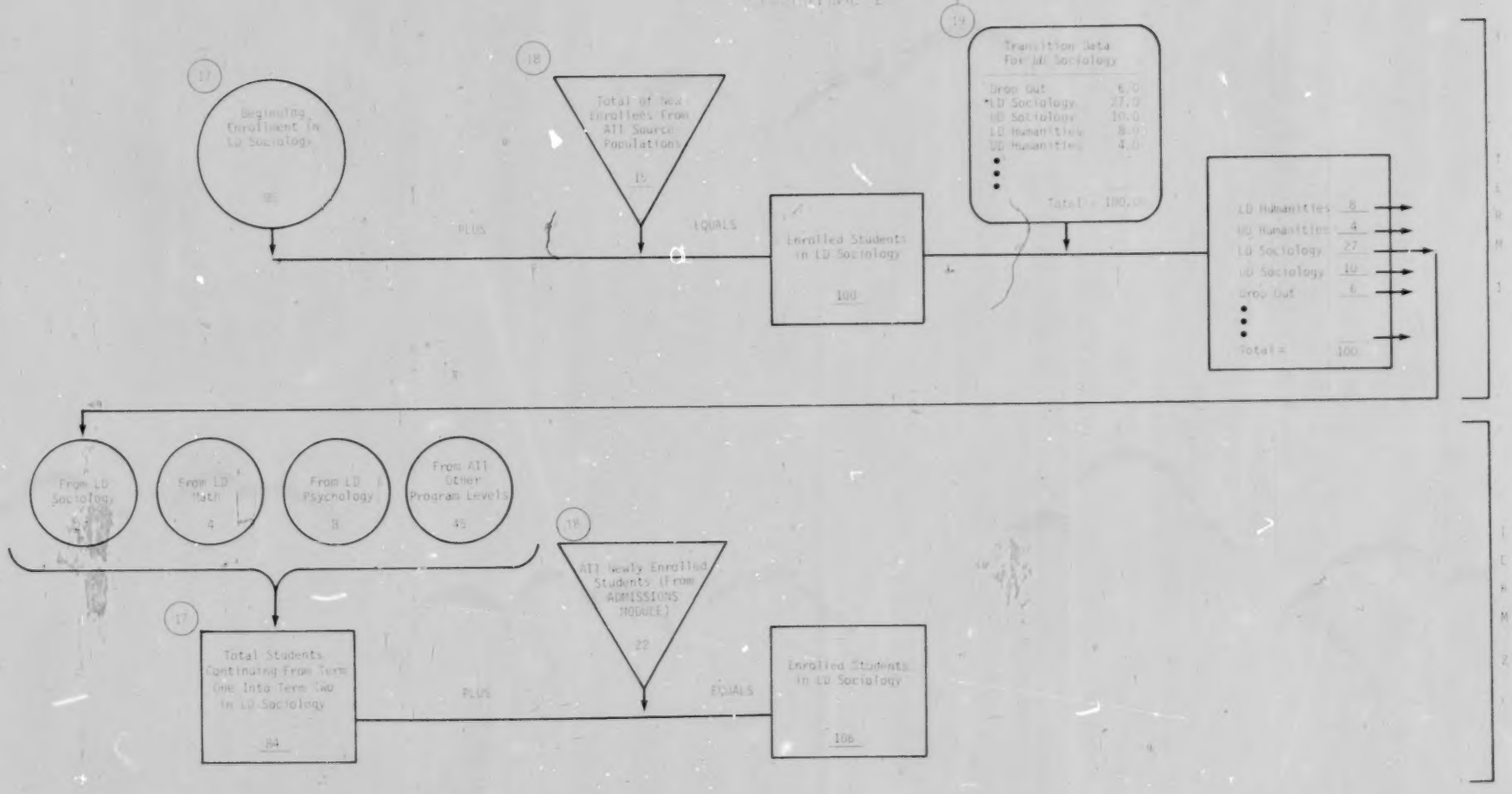
Figure 3 and 4 illustrate the computational flow of the ADMISSIONS and TRANSITION modules. Again, the logic shown does not describe all options available. Next to each input in these Figures is a circle indicating the actual input coding form used to provide the data shown. These input designators may be ignored for now, but may be found useful for reference after the input coding forms are described in subsequent sections.

The ADMISSIONS MODULE logic for applicants from a transfer student Source Population is shown in Figure 3. The group of applicants in the transfer student Source Population is first multiplied by the transfer student Participation Pattern to determine the number of students applying to each Broad Program Category/Student Level combination. In Figure 3, for example, twenty percent, or 80 students, of the 400 transfer students are projected to apply to lower division Social Science. (This example only traces the progress of these 80 students. The remaining 320 students are processed through similar logic in other Broad Program Category/Student Level combinations.) The admissions policy for lower division Social Science specifies that only 80 percent of the applicants from the transfer student Source Population can be admitted. This 80 percent multiplied by the 80 applicants


Transfer Student Articulation Pattern
LD Social Science 20
UD Social Science 10
LD Physical Science 10
UD Physical Science 8
LD Business 10
UD Business 12
Total = 100
Number Applying = 400
Students Applying to Broad Program Category
LD Business 40
UD Business 40
LD Social Science 80
UD Social Science 40
LD Physical Science 60
Total = 400
LD Social Science Admissions Policy = 80
% Show Percentage = 11
Students Admitted to LD Social Science 64
Student Enrolling in LD Social Science (rounded) 58
A
Distribution Pattern for LD Social Science
LD Psychology 15
LD Sociology 10
LD Humanities 8
Total = 100
B
Number of Returning Students Enrolling in LD Sociology = 8
Number of Transfer Students Enrolling in LD Sociology (rounded) 6
Number of New High School Graduates Enrolling in LD Sociology = 4
LD Sociology Total of New Enrollees from All Source Populations 18
To TRANSITION MODULE
* from an analysis of new high school graduates and returning students similar to the analysis of transfer students shown above.

results in 64 transfer students being projected for admission to lower division Social Science. The no-show factor for transfer students admitted to lower division Social Science has been specified as ten percent indicating that only 90 percent of the students admitted actually are expected to enroll. Fifty-eight students (90 percent multiplied by 64) therefore are projected to enroll in lower division Social Science. The distribution pattern for lower division Social Science is used next to distribute these 58 students to specific Program/Student Level combinations. According to the example in Figure 3, ten percent of the group of 58 students will distribute to lower division Sociology. This results in a projected number of six transfer students actually enrolling in lower division Sociology. These six students then are combined with newly enrolled students from other Source Populations to produce a total of 15 new students enrolling in lower division Sociology.

Figure 4 shows the TRANSITION MODULE logic for lower division Sociology. In the upper left corner of the Figure, the fifteen newly enrolled students from all Source Populations (from Figure 3) are shown. For only the first term to be analyzed, the beginning number of students in each Program/Student Level also must be specified. Eighty-five students are shown for lower division Sociology. These two groups of students comprise the term one total projected enrollment of 100 students in lower division Sociology. The next computation uses the transition pattern for lower division Sociology to project the number of these 100 students who will leave the institution, continue in lower division Sociology, or continue in the institution but move to other Program/Student Level combinations. In Figure 4, the transition data for lower division Sociology indicate that 27 percent (or 27


17
Beginning Enrollment in LD Sociology
95
18
Total of New Enrollees from All Source Populations
15
PLUS
EQUALS
Enrolled Students in LD Sociology
100
19
Transition Data For LD Sociology
Drop Out 6.0
*LD Sociology 27.0
UD Sociology 10.0
LD Humanities 8.0
UD Humanities 4.0
Total = 100.0
LD Humanities 8
UD Humanities 4
LD Sociology 27
UD Sociology 10
Drop Out 6
Total = 100
From LD Sociology
From LD Math
4
From LD Psychology
8
From All Other Program Levels
45
17
Total Students Continuing From Term One Into Term Two in LD Sociology
84
18
All Newly Enrolled Students (From ADMISSIONS MODULE)
22
PLUS
EQUALS
Enrolled Students in LD Sociology
106

students) of the 100 students are projected to continue in term two in lower division Sociology. These 27 students are shown enrolling in term two along with 4 students continuing from lower division Math, 8 students from lower division Psychology, and 45 students from all other Program/Student Level combinations. This total of 84 projected continuing students then is combined with the total of 22 newly enrolled students to make up a total projected enrollment of 106 students in lower division Sociology at the beginning of term two. Similar computations are performed for all other Program/Student Level combinations and for each term to be analyzed.

Options and Logic Flow

The overviews and conceptual flows above described only one path through the Student Flow Model logic. The three primary options available in the ADMISSIONS MODULE are described below.

- Absolute numbers rather than percentages.

Rather than using percentages to describe how a given number of students in a Source Population will apply to Broad Program Category/Student Level combinations. absolute numbers of students may be used. The input data then would consist of estimates, such as: 26 students from the transfer student Source Population will apply to lower division Business; 134 to upper division Social Sciences; 47 students from the returning student Source Population will apply to upper division Physical Sciences, and so forth. When this option is used, the total number of applicants in a

Source Population is not specified as input, but instead is reported by the ADMISSIONS MODULE as the sum of all of the individual specifications originating from the Source Population.

The use of percentage values or absolute numbers is on a Source Population by Term basis. For example, percentages may be used for transfer students for fall term data, absolute numbers for transfer student spring term data, absolute numbers for returning student fall term data, and so forth.

- Source Population directly to Program/Student Level

Some users may find that use of the Broad Program Category creates an artificial structural level that does not describe accurately their institution. Students from Source Populations therefore may "apply" directly to Program/Student Level combinations.

Either percentages or absolute numbers (as described above) may be used to specify Source Population applications to Program/Student Level combinations. Admissions policy and no-show rates also may be used with either option. As with the preceding option, the decision to apply to Broad Program Categories or directly to Programs is on a Source Population by Term basis.

Broad Program Categories may be defined even if all Source Population applications are made to Programs. In this case, they will be used only for aggregation purposes in the reports produced by the system.

- Other values for admissions policy and no-show rates

The admissions policy for a Source Population to Broad Program Category (or Program) application may be expressed as an absolute number rather than a percentage (for example, no more than 239 students applying from the transfer student Source Population will be admitted to upper division Social Science).

If no admissions policy value is specified for a Source Population to Broad Program Category (or Program) application, a default value of 100 percent is used (all students applying are admitted). If a no-show value is not specified, a rate of zero percent is assumed (all students admitted will enroll).

Logic Flow

Logic associated with the first two options (and the specification of definitional data used by the system) is shown in Figure 5. Again, the input coding form designators may be ignored for now.

Miscellaneous Comments

- A Broad Program Category titled 'Undefined BPC' is generated automatically by the system. Any Program not explicitly linked to a Broad Program Category via input form (6) is placed in this 'Undefined BPC'.

- If transition data has not been supplied for a Program/Level in which students are enrolled, these students will be continued in the same Program/Level in the next term. The system, in effect, generates a one hundred percent transition value for the same Program/Level.

Figure 5

Student Flow Model Admissions Logic F

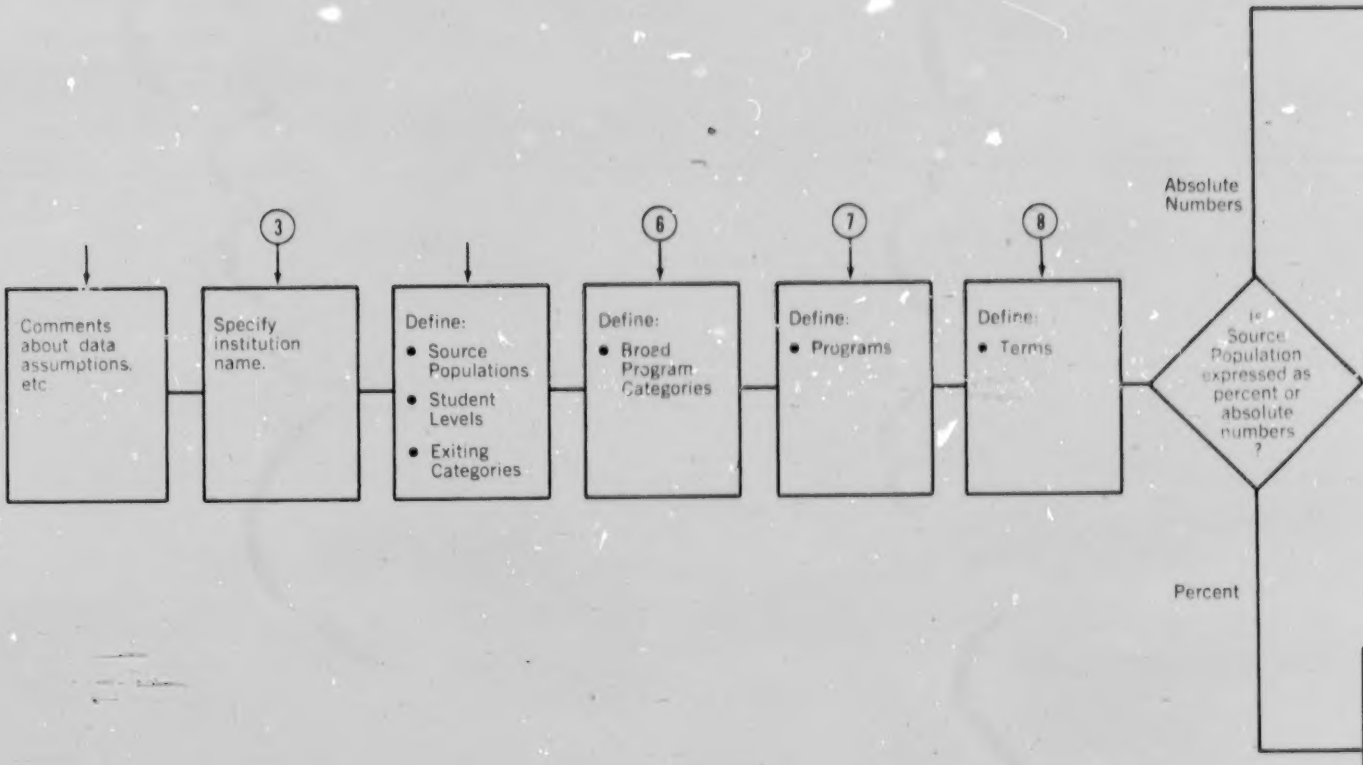
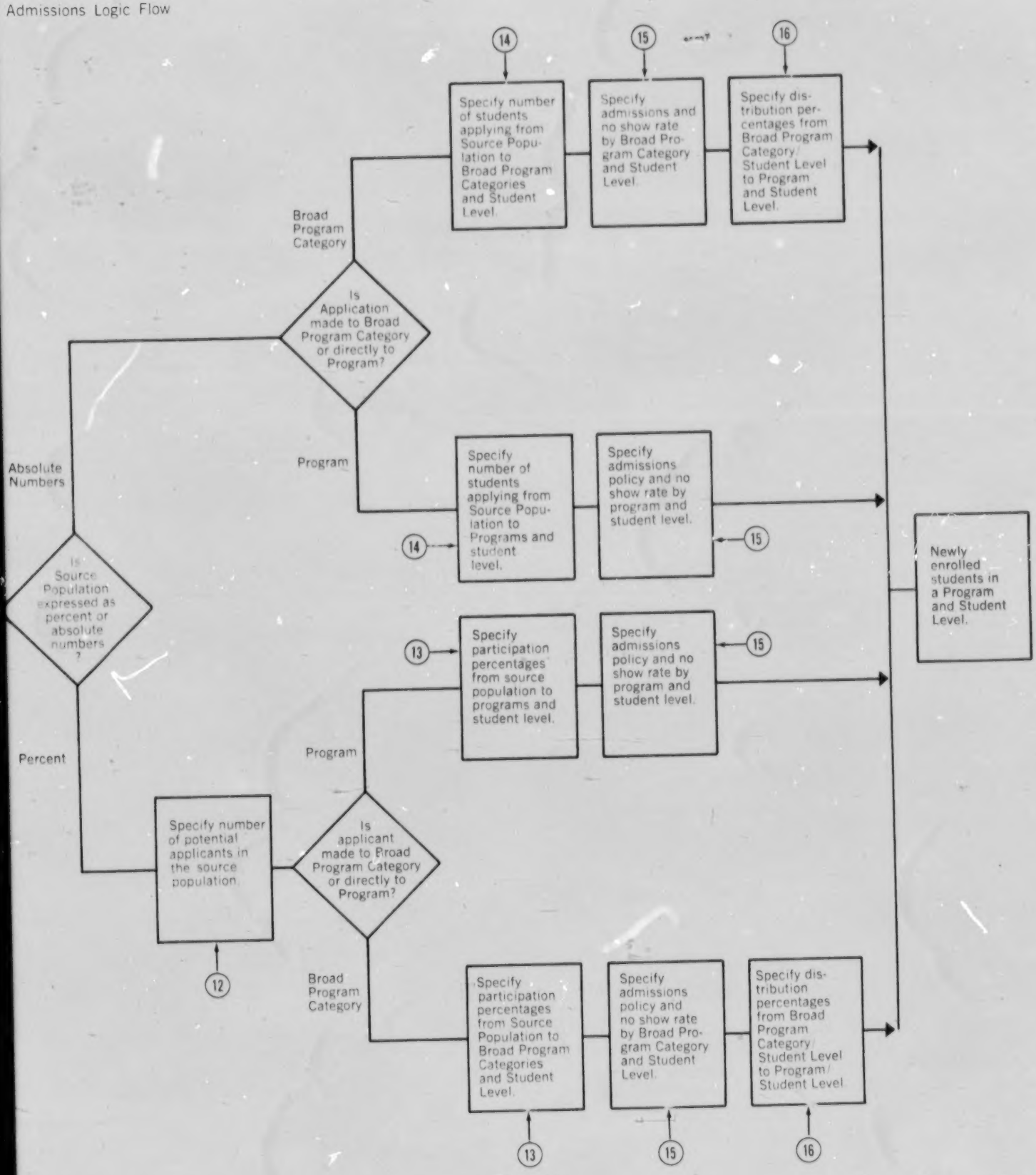


Figure 5

Admissions Logic Flow


Is Source Population expressed as percent or absolute numbers ?
Absolute Numbers
Percent
Is Application made to Broad Program Category or directly to Program?
Broad Program Category
Program
Specify number of students applying from Source Population to Broad Program Categories and Student Level.
Specify admissions and no show rate by Broad Program Category and Student Level.
Specify distribution percentages from Broad Program Category/ Student Level to Program and Student Level.
Specify number of students applying from Source Population to Programs and student level.
Specify admissions policy and no show rate by program and student level.
Specify number of potential applicants in the source population.
Is applicant made to Broad Program Category or directly to Program?
Specify participation percentages from source population to programs and student level.
Specify admissions policy and no show rate by program and student level.
Specify participation percentages from Source Population to Broad Program Categories and Student Level.
Specify admissions policy and no show rate by Broad Program Category and Student Level.
Specify distribution percentages from Broad Program Category/ Student Level to Program/ Student Level
Newly enrolled students in a Program and Student Level.
12
13
14
15
16

SECTION III

OVERVIEW OF THE STUDENT FLOW MODEL SFM-IA LOGIC (COMPUTER SOFTWARE)

The Student Flow Model SFM-IA computer software consists of four separate, but interrelated, modules. These modules and their primary functions are:

1. HISTORY MODULE - analyzes institutional data to quantify historical student flow patterns within the institution. The results of this analysis then may serve as input to the ADMISSIONS and TRANSITION modules.

2. ADMISSIONS MODULE - projects the number of new students enrolling in the institution at each program and level. These projections are based on estimates of the number of students in each source population from which the institution draws its students and estimates of the way in which students from these populations distribute themselves within the institution.

3. TRANSITION MODULE - estimates the number of enrolled students in each program and level combination who will exit from the institution (for example, graduate or drop out) and the number who will continue in the institution in each Program/Student Level combination.

4. EDIT MODULE - edits input data for the three other modules.

Each of these modules, and the input data required, is described in more detail below. Note that a series of circled numbers is shown on the SFM-IA flow charts (pages 9, 11, and 15). These numbers indicate data that must

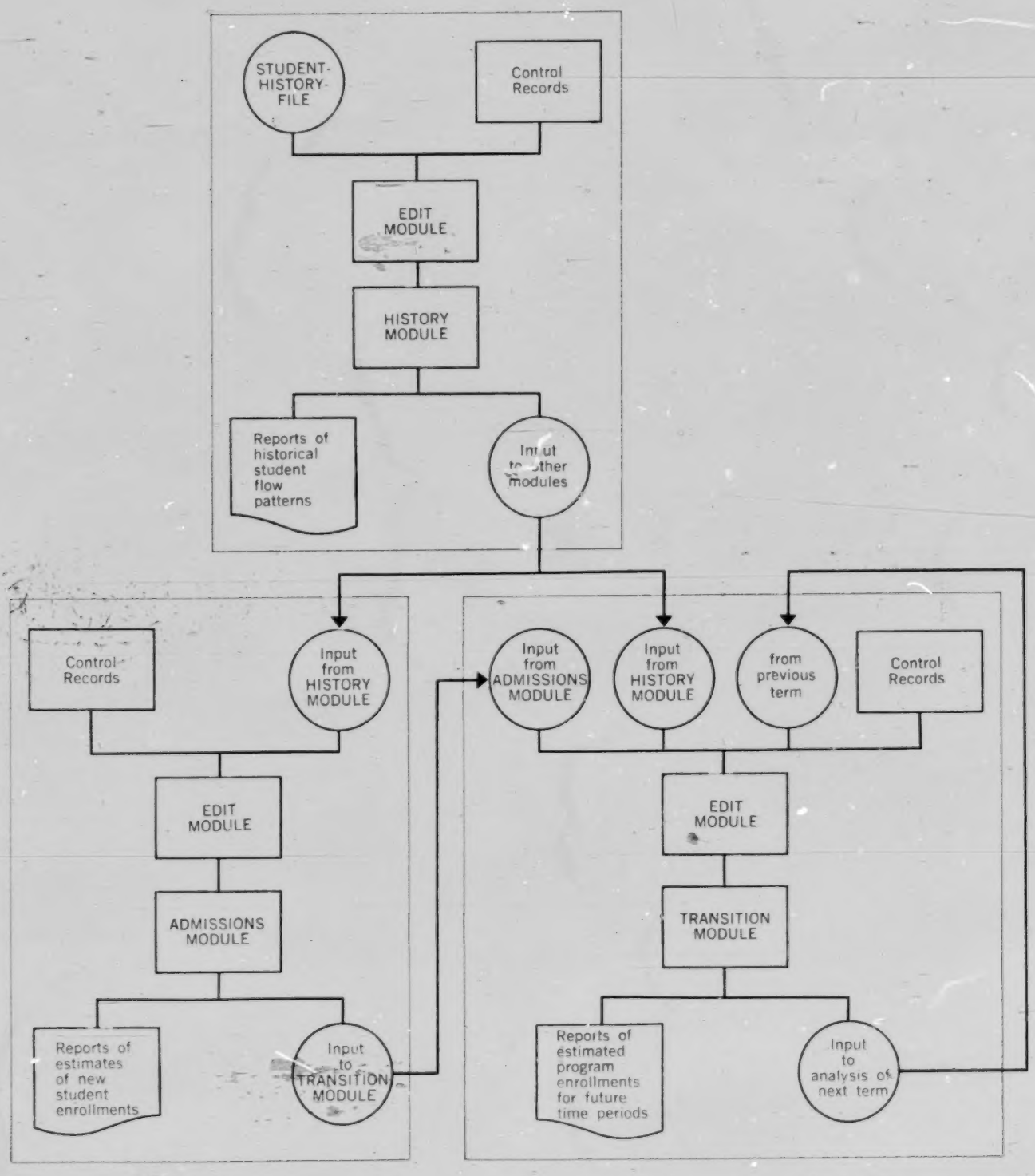
be provided by the user in order to run the model. On the following pages, each of these user inputs and its relationship to the model's calculations will be discussed. Because it is possible for an institution to implement any one of the modules alone, each module is described separately. However, because of the integrated design of the modules, a considerable amount of information is passed between modules if more than one module is implemented. This reduces the input that must be manually produced. Input for a module that can be obtained from a preceding module is indicated in the following descriptions.

Figure 6 illustrates the general logic and flow of information through the entire system of the general relationships between the several modules.

Appendix I contains a somewhat more detailed description of the logic flow and the Student Flow Model SFM-IA System Documentation, Technical Report No. 41B describes specific program and file interaction.

Figure 6

Overview of Student Flow Model SFM-IA
(Software Modules)



SECTION IV

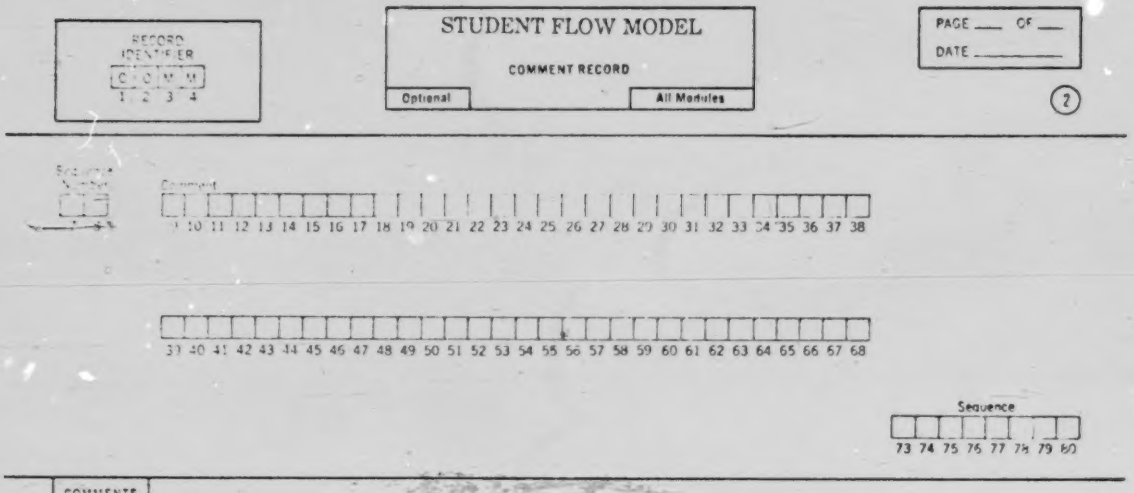
IMPLEMENTING THE SFM-IA HISTORY MODULE

This section describes the input required for the HISTORY MODULE and the reports available from it.

(2) Comments

An execution of SFM-IA often incorporates a particular set of assumptions or specifications. Up to one hundred comment records may be entered describing these assumptions for a run. These comments are printed on the first page of the report set.

The comment records will be sorted on the Sequence Number field. If the Sequence Number is blank the sorting sequence will be the order of input.

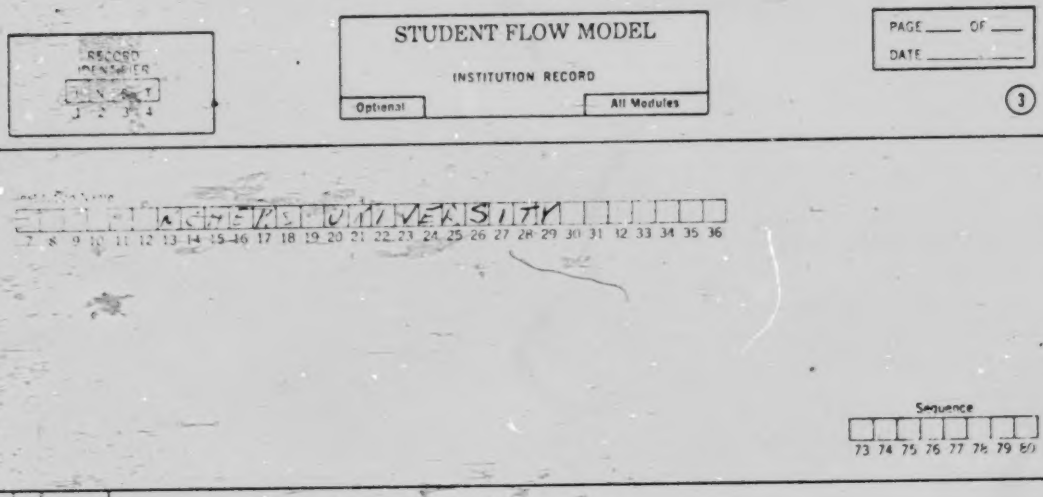


Sequence Number — The comment records will be sorted on the SEQUENCE NUMBER. If the SEQUENCE NUMBER is blank, the sorting sequence will be the order of input. Up to fifty comment records may be supplied. Sequence numbers must be between 1 and 50, inclusive.

Comment — Remarks entered in positions 9-68 apply to the duration being created. These remarks will be printed preceding the reports produced by the system.

(3) Institution Name

This input provides the name of the institution for use in report headings.


RECORD IDENTIFIER
1 2 3 4
STUDENT FLOW MODEL
INSTITUTION RECORD
Optional
All Modules
PAGE ___ OF ___
DATE ___
3
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
Sequence
73 74 75 76 77 78 79 80
COMMENTS
Enter institution name (centered)

(4) Title Record

This input provides the system with alternate titles for certain categories used in the model. For example, if an institution typically uses the term "major" rather than "student program," "major" can be specified as the title of the category via this input.

RECORD IDENTIFIER: T I T L
1 2 3 4

STUDENT FLOW MODEL

TITLE RECORD

Optional | All Modules

PAGE ___ OF ___
DATE ___ ___

(4)

Category: S T A V (7 8 9 10)

Category Title: A J S (11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30)

Sequence (73 74 75 76 77 78 79 80)

COMMENTS

PURPOSE: This input provides optional titles for the categories shown below. If a title is not supplied for a category, the default title is used.

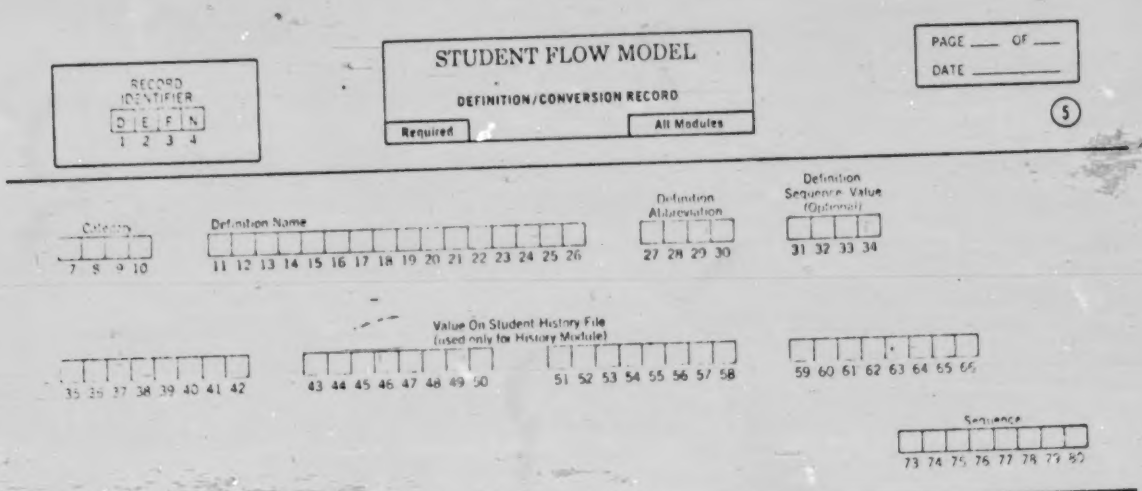
CATEGORY	Default Title
SPOP	SOURCE POPULATION
HSPR	HIGH SCHOOL PROGRAM
TSPR	STUDENT PROGRAM
STAY	STUDENT STATE
NEWS	NEW STUDENTS
EXIT	EXITING STUDENTS

NOTE: Input titles will be truncated to 12 characters.

5 Definitions

The Definition Record is used to define Source Populations, Student Levels, and Exiting Categories. This record also contains the conversion codes for converting values on the historical data file to one of the defined categories.

Multiple DEFN records may be used to enter values to be converted to any one Source Population, Student Level, or Exiting Category.


RECORD IDENTIFIER
D E F N
1 2 3 4
STUDENT FLOW MODEL
DEFINITION/CONVERSION RECORD
Required
All Modules
PAGE ___ OF ___
DATE _____
$
Category
7 8 9 10
Definition Name
11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Definition Abbreviation
27 28 29 30
Definition Sequence Value (Optional)
31 32 33 34
35 36 37 38 39 40 41 42
Value On Student History File (used only for History Module)
43 44 45 46 47 48 49 50
51 52 53 54 55 56 57 58
59 60 61 62 63 64 65 66
Sequence
73 74 75 76 77 78 79 80

COMMENTS

PURPOSE This input provides for each with names and abbreviations of the categories listed below, and for the HISTORY MODULE only, the values on the STUDENT HISTORY FILE that correspond to each defined category. These labels are used by the system for linking and identifying data elements for calculating and/or reporting.

CATEGORY	DATA	MAXIMUM NUMBER*
SPOP	Source Population	900
SLEV	Student Level	15
EXIT	Exiting Category	900

DEFINITION ABBREVIATION This data item may be alphabetic or numeric. It supplies the system with the codes which will be used to identify Source Populations, Student Levels, and Exiting Categories in the input data.

DEFINITION SEQUENCE VALUE This data item may be alphabetic or numeric. It is used to explicitly define the sorting sequence for each of the above data categories. If left blank, the abbreviation field will be used as the sequence value.

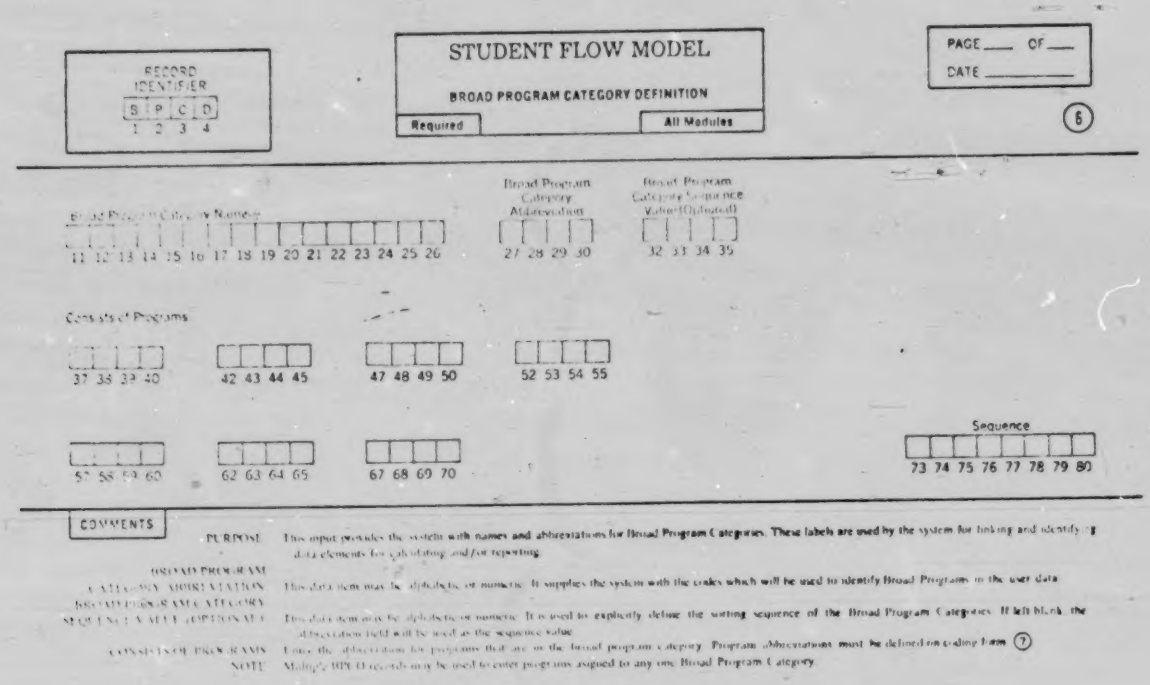
NOTE

- Multiple DEFN records may be used to enter values assigned to any one Source Population, Student Level or Exiting Category.
- HISTORY MODULE only. If one of the value fields for a source population record contains "$$TEST" (left justified) all source population elements on the STUDENT HISTORY FILE not otherwise defined will be assigned to the source population specified by the definition abbreviation. The same code may be used to assign otherwise undefined student level elements.

* Maximum number of file values for category when running History Module

(6) Broad Program Category Names

This input provides the system with names and abbreviations for Broad Program Categories. The Programs that make up each Broad Program Category also are specified on this record.



Programs that are not explicitly linked to a Broad Program Category with this record are placed in an "Undefined" program category that is automatically generated by the system. The system also automatically generates a pseudo Broad Program Category within which exiting categories defined on input form (5) are placed. The abbreviation for this Broad Program Category is 'EXIT'. This abbreviation should therefore not be supplied by the user.

(7) Program Names

This input provides the system with names and abbreviations for Program Names and the values for converting entries on the historical file to one of the defined categories.

RECORD IDENTIFIER: P R O G (1 2 3 4)

STUDENT FLOW MODEL

PROGRAM TITLE/CONVERSION RECORD

Required | All Modules

PAGE ___ OF ___

DATE _____

(7)

Program Name (11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26)

Program Abbreviation (27 28 29 30)

Program Sequence Value (Optional) (31 32 33 34)

Value on Student History File (use for History Module only)

(35 36 37 38 39 40 41 42) (43 44 45 46 47 48 49 50)

(51 52 53 54 55 56 57 58) (59 60 61 62 63 64 65 66)

Sequence (73 74 75 76 77 78 79 80)

COMMENTS

PURPOSE: This input provides the system with names and abbreviations for program titles. These labels are used by the system for linking and identifying data elements for calculating and/or reporting.

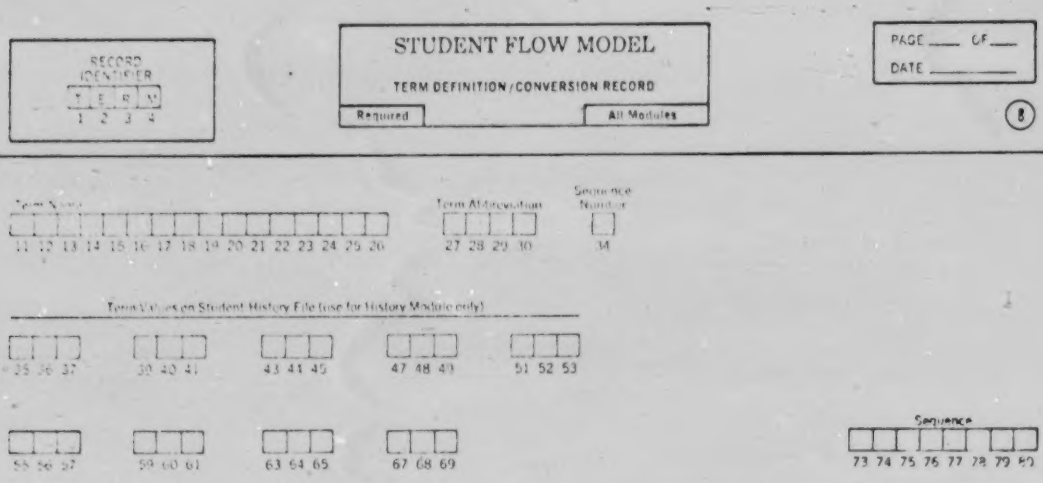
PROGRAM ABBREVIATION: This data item may be alphabetic or numeric. It supplies the system with the codes which will be used when identifying programs within the user data.

PROGRAM SEQUENCE VALUE (OPTIONAL): This data item may be alphabetic or numeric. It is used to explicitly define the sorting sequence of the programs. If left blank, the abbreviation field will be used as the sequence value.

NOTE:
- Multiple PROG records may be used to enter VALUES ON STUDENT HISTORY FILE for any one program.
- HISTORY MODULE only. If one of the value fields contains "ALL ", then preloads all program elements on the STUDENT HISTORY FILE not otherwise defined will be assigned to the program on this record.

8 Term Definitions

This input provides the system with the names and abbreviations for the Terms included in the year and the values for converting entries on the historical file to one of the defined categories.



COMMENTS

PURPOSE: This input provides the system with the names and abbreviations for the terms included in the academic year.

TERM ABBREVIATION: This data item may be alphabetic or numeric. It supplies the system with the codes which will be used by the system when identifying terms within the user data.

TERM SEQUENCE: This data item specifies the order in which the defined terms occur during the period of time modeled. The term should be numbered in ascending order within the academic year. This item must be numeric and values supplied must be consecutive. Value entered must be 1, 2, 3, or 4.

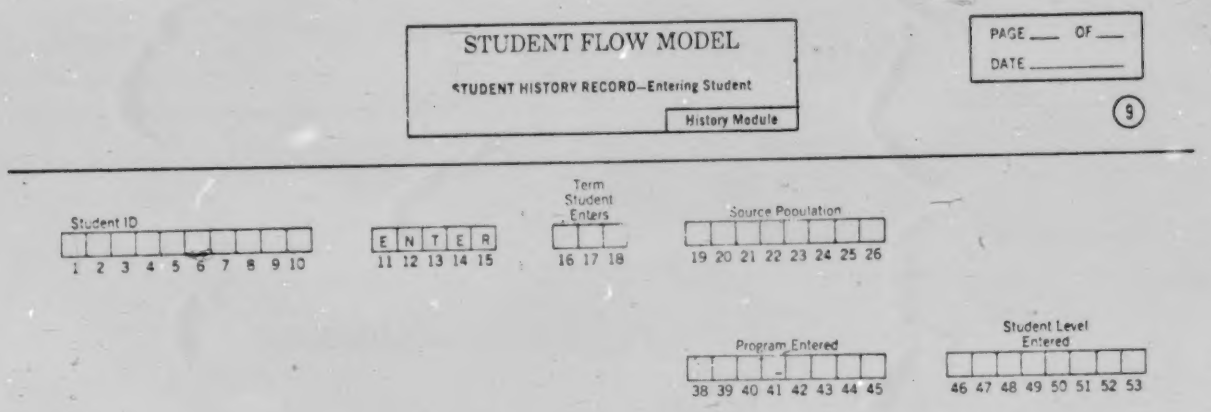
EXAMPLE:

TERM NAME	TERM ABBREVIATION	TERM SEQUENCE
Fall	FALL	1
Spring	SP	2

VALIDATION SUPPLIED BY HISTORY FILE: These are the year term identifiers which appear in positions 16-18 of the student records. Only those records which have identifiers which match those specified on TERM cards will be recognized. Up to 15 term values may be specified.

(9) (10) (11) Historical Data

The Student History File consists of historical records describing entering students, continuing students, and exiting students. Input coding form (9) describes an entering student, form (10) a continuing student, and form (11) an exiting student.



STUDENT FLOW MODEL

STUDENT HISTORY RECORD—Entering Student

History Module

PAGE ___ OF ___

DATE _____

(9)

Student ID: 1 2 3 4 5 6 7 8 9 10

E N T E R: 11 12 13 14 15

Term Student Enters: 16 17 18

Source Population: 19 20 21 22 23 24 25 26

Program Entered: 38 39 40 41 42 43 44 45

Student Level Entered: 46 47 48 49 50 51 52 53

COMMENTS

PURPOSE: This input provides an historic observation of a newly enrolled student entering the institution.

STUDENT ID: Enter alphanumeric student identification.

TERM STUDENT ENTERS: Identify term in which student entered the institution. Entry must correspond to a term value provided on input form (8).

SOURCE POPULATION: Identify source population from which student came. Entry must correspond to one of the source population values provided on input form (5).

PROGRAM ENTERED: Identify program and student level that student enrolled in. Program entry must correspond to a value provided on input form (7).

STUDENT LEVEL ENTERED: Student level entry must correspond to value provided on input form (5).

For a record in the Student History File to be included in the analysis, the Term value coded in positions 16 through 18 of a history record must match one of the Term values provided on the Term Definition record, input form (8).

STUDENT FLOW MODEL

STUDENT HISTORY RECORD—Continuing Student

History Module

PAGE ___ OF ___

DATE _____

(10)

Student ID		First Term of Observation	Program in First Term	Student Level in First Term
1 2 3 4 5 6 7 8 9 10	C O N T 11 12 13 14 15	16 17 18	19 20 21 22 23 24 25 26	27 28 29 30 31 32 33 34

Second Term of Observation	Program in Second Term	Student Level in Second Term
35 36 37	38 39 40 41 42 43 44 45	46 47 48 49 50 51 52 53

COMMENTS

PURPOSE: This input provides an historical observation of a student continuing from one term to the next.

STUDENT ID: Enter alphanumeric student identification.

FIRST TERM OF OBSERVATION: Identify term in which first observation is made. Both term entries on this input must correspond to a term value provided on input form (8).

PROGRAM IN FIRST TERM: Identify program and student level that student was in during first term. Entries for program and student level must correspond to values provided on input forms (7) and (5) respectively.

STUDENT LEVEL IN FIRST TERM

SECOND TERM OF OBSERVATION: Identify term in which second observation is made.

PROGRAM IN SECOND TERM: STUDENT LEVEL IN SECOND TERM: Identify program and student level that student was in during second term.

STUDENT FLOW MODEL

STUDENT HISTORY RECORD—Exiting Student

History Module

PAGE ___ OF ___

DATE _____

(11)

Student ID		Term That Student Exits	Program Left	Student Level Left
1 2 3 4 5 6 7 8 9 10	E X I T 11 12 13 14 15	16 17 18	19 20 21 22 23 24 25 26	27 28 29 30 31 32 33 34

Exiting Category
38 39 40 41 42 43 44 45

COMMENTS

PURPOSE: This input provides an historic observation of a student leaving the institution.

STUDENT ID: Enter alphanumeric student identification.

TERM THAT STUDENT EXITS: Enter abbreviation for the last term that student was enrolled. Entry must correspond to a term value provided on input form (8).

PROGRAM LEFT: STUDENT LEVEL LEFT: Enter program and student level in which student was enrolled in "Term that student EXITS".

EXITING CATEGORY: Enter exiting category that student entered. Entry must correspond to an exiting value provided on input form (5).

The following example may help in understanding the correct coding of historical data in this format. Assume student Jones was observed to have the following historical interaction with an institution:

- transferred into the institution in Lower Division History in Fall 1968
- was enrolled in Lower Division English in Spring 1969
- was enrolled in Lower Division English in Fall 1969
- was enrolled in Lower Division English in Fall 1970
- was enrolled in Upper Division English in Spring 1971
- dropped out of the institution during Spring 1971
- returned to the institution in Upper Division English in Spring 1972

This historical data would be recorded on the Student History File as shown in Table 1. Table 1 assumes that the term entries have been appropriately defined as values on input form (8), the Source Populations, Student Levels, and Exiting Category on input form (5) and the Programs on input form (7).

Table 1

Sample Historical Data

Form	Data Entered					
9	JONES	ENTER	F68	TRANSFER	HIST	LD
10	JONES	CONT	F68	HIST LD	S69	ENGL LD
10	JONES	CONT	S69	ENGL LD	F70	ENGL LD
10	JONES	CONT	F70	ENGL LD	S71	ENGL UD
11	JONES	EXIT	S71	ENGL UD	DROP-OUT	
9	JONES	ENTER	S72	RETURN	ENGL UD	

(1a) Control Record - HISTORY MODULE

This input specifies a run of the HISTORY MODULE.

The Max Student Records field typically is used for the first run or two when the main purpose of the run is to determine that the definitional records have been prepared and keypunched correctly.

Appendix I contains a more technical description of the Iteration Out field and its relationship to other modules.

RECORD IDENTIFIER: S F M - I A (1 2 3 4 5 6)

STUDENT FLOW MODEL

CONTROL RECORD--HISTORY MODULE

Required | History Module

PAGE ___ OF ___

DATE _____

(1a)

Module	Option	Iteration Out	Iteration Name
H I S T (7 8 9 10)	R U N (11 12 13)	(16 17)	(25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40)

Date	Optional Data File	Lines Per Page	Student Record Error Flag	Max Errors	Max Student Records
(41 42 43 44 45 46 47 48)	(49)	(50 51)	(60)	(61 62 63 64 65 66)	(67 68 69 70 71 72)

Sequence (73 74 75 76 77 78 79 80)

COMMENTS

PURPOSE: This input specifies an execution of the HISTORY MODULE.

ITERATION OUT: This data item identifies the set of data to be created and saved for use by the ADMISSIONS or TRANSITION MODULES.

OPTIONAL DATA FILE: Enter 'Y' if optional input data file is to be read. (Typically not used in HISTORY MODULE.)

LINES PER PAGE: Enter lines per page (30-59) desired on reports. (Default=55)

STUDENT RECORD ERROR FLAG: If 'N' entered individual errors generated are not printed. Error summaries are still produced.

MAX ERRORS: Enter right-justified number. If errors generated when processing STUDENT-HISTORY-FILE exceed this value, the run will be terminated. (Default 999999.)

MAX STUDENT RECORDS: Enter right-justified number which specifies number of records to read from STUDENT-HISTORY-FILE before simulating end-of-data condition.

(1d) Report Control Record

This input requests one or more reports to be produced. The Report Number field should contain one of the numbers shown in Table 2 to produce the report indicated (or '**' to produce all reports).

In general, each of the reports described in Table 2 is produced for each term defined on input form (8).

RECORD IDENTIFIER: S F M . I A (1 2 3 4 5 6)

STUDENT FLOW MODEL

REPORT CONTROL RECORD

Required | All Modules

PAGE ___ OF ___

DATE _____

(1d)

Module (7 8 9 10) | Option: R P T (11 12 13) | Report Number (14 15) | Lines Per Page (50 51)

Sequence (73 74 75 76 77 78 79 80)

COMMENTS

PURPOSE: This input requests one or more reports to be produced and permits overriding the default lines per page value.

MODULE: Enter 'HIST', 'ADMS' or 'TRAN' to indicate the module reports are being requested from.

REPORT NUMBER: Enter number of reports requested. The HISTORY MODULE produces reports 1-7, the ADMISSIONS MODULE reports 8-11 and the TRANSITION MODULE reports 12-16. If REPORT NUMBER contains '**' all reports for the module will be produced.

LINES PER PAGE: Enter lines per page (30-99) desired on reports. (Default=55)

NOTE: Prepare one input record for each report requested (unless the '**' REPORT NUMBER option is used).

Table 2

HISTORY MODULE Reports

Report Number	Report Title	Description
1	Distribution of Source Population	Programs and Student Levels in which students from each Source Population enroll.
2	Participation of Source Population	Broad Program Categories and Student Levels to which students from each Source Population apply.
3	Distribution of Broad Program Category	Distribution of Broad Program Categories and Student Levels to Programs and Student Levels.
4	Transition from Student Program	Transition percentages for each Program and Student Level.
5	Transition from Broad Program Category	A summary of Report 4 data to show transitions between Broad Program Categories and Student Levels.
6	Source of Students for Student Program	Source of students (e.g., Source Populations, Programs and Student Levels) for each Program and Student Level.
7	Source of Students for Broad Program Categories	A summary of Report 6 data to show the source of students (e.g., Source Populations, Broad Program Categories and Student Levels) for each Broad Program Category and Student Level.

Examples of the reports produced by the HISTORY MODULE are shown in Figures 7 through 14 following. Italicized comments are also included that describe particular numbers or indicate the input form through which a value was provided. Only sample reports are shown in this document. A complete set of reports for the test data supplied with the computer software is available in Student Flow Model SFM-IA Reports, Technical Report 42.

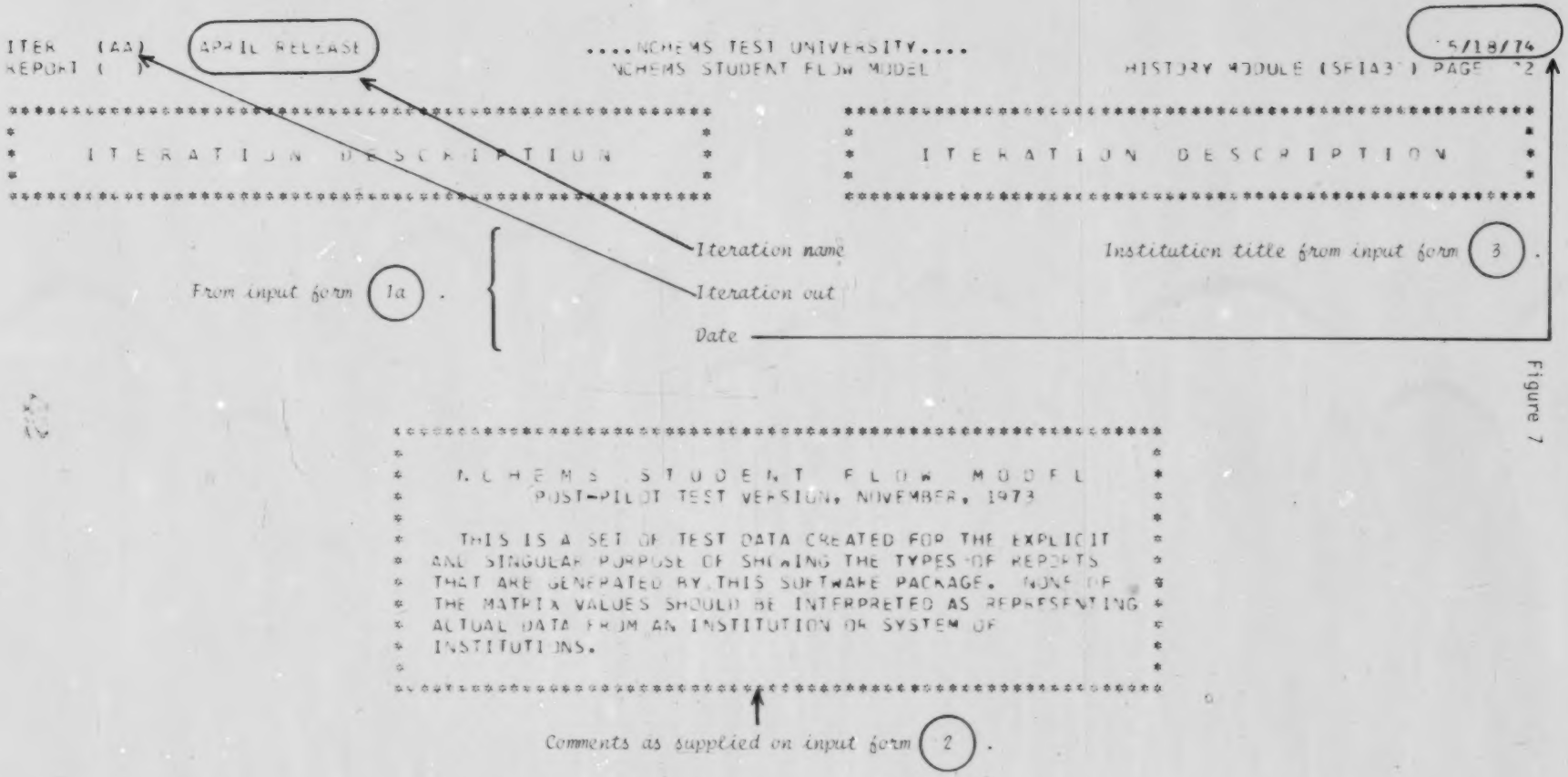

ITER (AA) APRIL RELEASE
REPORT ( )
....NCHEMS TEST UNIVERSITY....
NCHEMS STUDENT FLOW MODEL
5/18/74
HISTORY MODULE (SFIA3) PAGE 2
ITERATION DESCRIPTION
ITERATION DESCRIPTION
Iteration name
Iteration out
Date
From input form (1a) .
Institution title from input form (3) .
N C H E M S S T U D E N T F L O W M O D E L
POST-PILOT TEST VERSION, NOVEMBER, 1973
THIS IS A SET OF TEST DATA CREATED FOR THE EXPLICIT
AND SINGULAR PURPOSE OF SHOWING THE TYPES OF REPORTS
THAT ARE GENERATED BY THIS SOFTWARE PACKAGE. NONE OF
THE MATRIX VALUES SHOULD BE INTERPRETED AS REPRESENTING
ACTUAL DATA FROM AN INSTITUTION OR SYSTEM OF
INSTITUTIONS.
Comments as supplied on input form (2) .

Figure 7

ITER (AA) APRIL RELEASE ...NUMERUS TEST UNIVERSITY.... 76/04/14
REPORT (C1) ONE ← Report number ...NUMERUS STUDENT FLOW MODEL HISTORY MODULE (SFIA3) PAGE 1

****
* *
* HISTORICAL DATA *
* DISTRIBUTION OF SOURCE POPULATION *
* *
****

****
* *
* FROM *
* *
* (NEW) NEW FRESHMEN SOURCE POPULATION *
* *
****

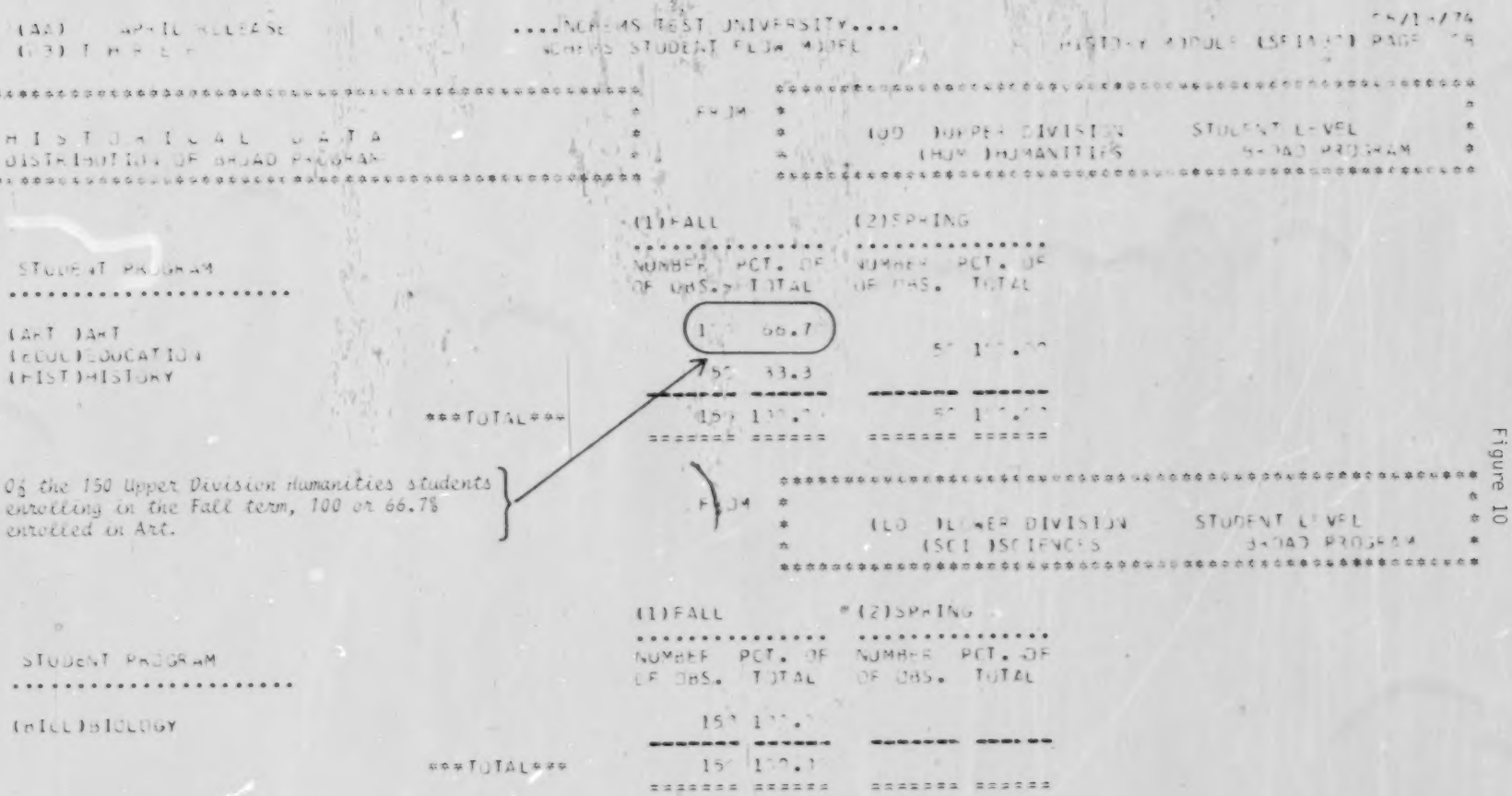
BROAD PROGRAM / STUDENT PROGRAM	STUDENT LEVEL	(1)FALL NUMBER OF OBS.	(1)FALL PCT. OF TOTAL	(2)SPRING NUMBER OF OBS.	(2)SPRING PCT. OF TOTAL
(&&&)UNDEFINED BPC					
(MATH)MATHEMATICS	(LD) LOWER DIVISION	25	21.74	1	4.
	(UD) UPPER DIVISION	1	8.7		
	TOTAL	35		1	
	TOTAL	35		1	
(HUM)HUMANITIES					
(ART)ART	(LD) LOWER DIVISION	2	17.39	1	4.
	TOTAL	20		1	
(EDUC)EDUCATION	(LD) LOWER DIVISION	15	13. 4		
	(UD) UPPER DIVISION			1	25.
	TOTAL	15		5	
(HIST)HISTORY	(LD) LOWER DIVISION	3	26.08		
	(UD) UPPER DIVISION	5	4.35		
	TOTAL	35			
	TOTAL	7		15	
(SCI)SCIENCES					
(BIOL)BIOLOGY	(LD) LOWER DIVISION	1	8.7		
	TOTAL	1			
	TOTAL	1			
	TOTAL	115	100.00	25	100.

In the historical data, 200 or 17.39% of the 1150 new freshmen enrolling in the fall term enrolled in the program of Lower Division Art.

Figure 8

In the historical data, 650 or 56.51% of the 1150 new freshmen enrolling in the fall term enrolled in the Broad Program category Lower Division Humanities.

Figure 9



ITEM (ARD) APRIL RELEASE ....NORTHEAST UNIVERSITY.... 05/14/74
REPORT (L3) T H R E E NORTHS STUDENT FLOW MODEL PAGE 38

FROM

HISTORICAL DATA
DISTRIBUTION OF BROAD PROGRAMS

100 UPPER DIVISION STUDENT LEVEL
(HUM) HUMANITIES BROAD PROGRAM

STUDENT PROGRAM	(1)FALL NUMBER OF OBS.	(1)FALL PCT. OF TOTAL	(2)SPRING NUMBER OF OBS.	(2)SPRING PCT. OF TOTAL
(ART)ART	100	66.7	5[illegible]	1[illegible].[illegible]
(EDUC)EDUCATION	50	33.3		
(HIST)HISTORY				
TOTAL	150	100.0	[illegible]	100.0

Of the 150 Upper Division Humanities students enrolling in the Fall term, 100 or 66.7% enrolled in Art.

FROM

100 LOWER DIVISION STUDENT LEVEL
(SCI) SCIENCES BROAD PROGRAM

STUDENT PROGRAM	(1)FALL NUMBER OF OBS.	(1)FALL PCT. OF TOTAL	(2)SPRING NUMBER OF OBS.	(2)SPRING PCT. OF TOTAL
(BIOL)BIOLOGY	150	100.0		
TOTAL	150	100.0		

Figure 10

****
* H I S T O R I C A L D A T A *
* TRANSITION FROM STUDENT PROGRAM *
****

FROM * (UD) UPPER DIVISION STUDENT LEVEL *
* (ART) ART STUDENT PROGRAM *
* (HUM) HUMANITIES MAJOR PROGRAM *

LOCAL PROGRAM STUDENT PROGRAM	STUDENT LEVEL	FROM (1)FALL TO (2)SPRING NUMBER OF OBS.	 PCT. OF TOTAL	FROM (2)SPRING TO (1)FALL NUMBER OF OBS.	 PCT. OF TOTAL
(HUM)HUMANITIES					
(EDUC)EDUCATION	(UD) UPPER DIVISION	10[illegible]	22.2[illegible]		
	TOTAL	10[illegible]	22.2[illegible]		
	TOTAL	4[illegible]	88.9[illegible]	1[illegible]	28.5[illegible]
(SCI)SCIENCES					
(BIOL)BIOLOGY	(UD) UPPER DIVISION			5[illegible]	14.3[illegible]
	TOTAL			5[illegible]	14.3[illegible]
	TOTAL			5[illegible]	14.3[illegible]
(EXIT)EXITING STUDENTS					
(DRLP)DROPPED OUT		5[illegible]	11.1[illegible]	1[illegible]	28.6[illegible]
(GRAD)GRADUATED				1[illegible]	28.6[illegible]
	TOTAL	5[illegible]	11.1[illegible]	2[illegible]	57.2[illegible]
	TOTAL	45[illegible]	100.0[illegible]	35[illegible]	100.0[illegible]

In the historical data for spring to fall transitions, 50 or 14.30% of the 350 students in Upper Division Art transferred to Upper Division Biology

Figure 11

****
* *
* HISTORICAL DATA *
* TRANSITION FROM BROAD PROGRAM *
* *
****

FROM * (UD) UPPER DIVISION STUDENT LEVEL *
*
* (HUM) HUMANITIES BROAD PROGRAM *

BROAD PROGRAM / STUDENT LEVEL	FROM (1)FALL TO (2)SPRING NUMBER OF OBS.	FROM (1)FALL TO (2)SPRING PCT. OF TOTAL	FROM (2)SPRING TO (1)FALL NUMBER OF OBS.	FROM (2)SPRING TO (1)FALL PCT. OF TOTAL
(EXIT)EXITING STUDENTS				
TOTAL	15[illegible]	14.[illegible]	[illegible]	44.4[illegible]
TOTAL	1[illegible]	1[illegible]	[illegible]	[illegible]

FROM * (LO) LOWER DIVISION STUDENT LEVEL *
*
* (SCI) SCIENCES BROAD PROGRAM *

BROAD PROGRAM / STUDENT LEVEL	FROM (1)FALL TO (2)SPRING NUMBER OF OBS.	FROM (1)FALL TO (2)SPRING PCT. OF TOTAL	FROM (2)SPRING TO (1)FALL NUMBER OF OBS.	FROM (2)SPRING TO (1)FALL PCT. OF TOTAL
(????)UNDEFINED BPC				
(LL)LOWER DIVISION	5[illegible]	1[illegible]		
(UD)UPPER DIVISION			5[illegible]	12.50
TOTAL	5[illegible]	1[illegible]	5[illegible]	12.50
(HUM)HUMANITIES				
(UL)UPPER DIVISION	5[illegible]	1[illegible]	5[illegible]	12.50
TOTAL	5[illegible]	1[illegible]	5[illegible]	12.50
(SCI)SCIENCES				
(LO)LOWER DIVISION	25[illegible]	5[illegible]	20[illegible]	5[illegible]
(UD)UPPER DIVISION	15[illegible]	3[illegible]	10[illegible]	25.[illegible]
TOTAL	4[illegible]	8[illegible]	3[illegible]	75.[illegible]
TOTAL	5[illegible]	1[illegible]	4[illegible]	1[illegible]

In the historical data for spring to fall transitions, 50 or 12.50% of the students in the Broad Program Category Lower Division Sciences transferred to Upper Division Humanities.

Figure 12

ITEM (AAA) APRIL RELEASE ....HOMER'S TEST UNIVERSITY.... REPORT
REPORT (UD)2 I A HOMERS STUDENT FLOW MODEL HISTORY MODULE (SPRING) PAGE

****
* *
* HISTORICAL DATA *
* SOURCE OF STUDENTS FOR STUDENT PROGRAM *
****

TO

****
* (LD) LOWER DIVISION STUDENT LEVEL *
* (EDUC) EDUCATION STUDENT PROGRAM *
* (HUM) HUMANITIES BROAD PROGRAM *
****

BREAK PROGRAM

STUDENT PROGRAM	STUDENT LEVEL	FROM (1)FALL TO (2)SPRING NUMBER OF OBS.	FROM (1)FALL TO (2)SPRING PCT. OF TOTAL	FROM (2)SPRING TO (1)FALL NUMBER OF OBS.	FROM (2)SPRING TO (1)FALL PCT. OF TOTAL
(HUM)HUMANITIES					
(ART)ART	(LD) LOWER DIVISION	5	14.3	5	12.50
	TOTAL	5	14.3	5	12.50
(EDUC)EDUCATION	(LD) LOWER DIVISION	25	71.4	15	37.50
	TOTAL	25	71.43	15	37.50
	TOTAL	30	85.71	20	50.00
(NEW)NEW STUDENTS					
(NEW)NEW FRESHMEN				15	37.50
(RET)RETURNING		5	14.30	5	12.50
	TOTAL	5	14.30	20	50.00
	TOTAL	35	100.00	40	100.00

In the historical data, 50 or 12.50% of students enrolling in Lower Division Education in the fall term had been in Lower Division Art in the preceding opening term.

Figure 13

TO

****
* (UD) UPPER DIVISION STUDENT LEVEL *
* (EDUC) EDUCATION STUDENT PROGRAM *
* (HUM) HUMANITIES BROAD PROGRAM *
****

BROAD PROGRAM

STUDENT PROGRAM	STUDENT LEVEL	FROM (1)FALL TO (2)SPRING NUMBER OF OBS.	FROM (1)FALL TO (2)SPRING PCT. OF TOTAL	FROM (2)SPRING TO (1)FALL NUMBER OF OBS.	FROM (2)SPRING TO (1)FALL PCT. OF TOTAL
(HUM)HUMANITIES					
(ART)ART	(UD) UPPER DIVISION	10	22.22		
	TOTAL	10	22.22		
(EDUC)EDUCATION	(LD) LOWER DIVISION	5	11.1	5	22.2

```
**********                                  **********
*                                *  TO     * (LCU ) LOWER DIVISION   STUDENT LEVEL  *
*  HISTORICAL DATA               *         *                                         *
*  SOURCE OF STUDENTS FOR BROAD PROGRAM     *         *  (SCI ) SCIENCES        BROAD PROGRAM  *
**********                                  **********
```

BROAD PROGRAM / STUDENT LEVEL	FROM (1)FALL TO (2)SPRING NUMBER OF OBS.	FROM (1)FALL TO (2)SPRING PCT. OF TOTAL	FROM (2)SPRING TO (1)FALL NUMBER OF OBS.	FROM (2)SPRING TO (1)FALL PCT. OF TOTAL
(NEW) NEW STUDENTS				
TOTAL			15	35.3
TOTAL	35	100.0	45	100.0

```
                                  **********
                                  *                                         *
                            TO    * (UCU ) UPPER DIVISION   STUDENT LEVEL  *
                                  *                                         *
                                  *  (SCI ) SCIENCES        BROAD PROGRAM  *
                                  **********
```

BROAD PROGRAM / STUDENT LEVEL	FROM (1)FALL TO (2)SPRING NUMBER OF OBS.	FROM (1)FALL TO (2)SPRING PCT. OF TOTAL	FROM (2)SPRING TO (1)FALL NUMBER OF OBS.	FROM (2)SPRING TO (1)FALL PCT. OF TOTAL
(????) UNDEFINED BPC				
(LCU) LOWER DIVISION	5	6.7		
TOTAL	5	6.7		
(HUM) HUMANITIES				
(LCU) LOWER DIVISION	5	6.7	5	7.1
(UCU) UPPER DIVISION			10	14.3
TOTAL	5	6.7	15	21.4
(SCI) SCIENCES				
(LCU) LOWER DIVISION	15	20.0	10	14.3
(UCU) UPPER DIVISION	50	66.7	45	64.3
TOTAL	65	86.7	55	78.6
TOTAL	75	100.0	70	100.0

In the historical data, 5 or 7.1% of the students enrolling in the fall term in the Broad Program Category Upper Division Sciences had been in Lower Division Humanities in the preceding spring term.

Figure 14

SECTION V

IMPLEMENTING THE SFM-IA ADMISSIONS MODULE

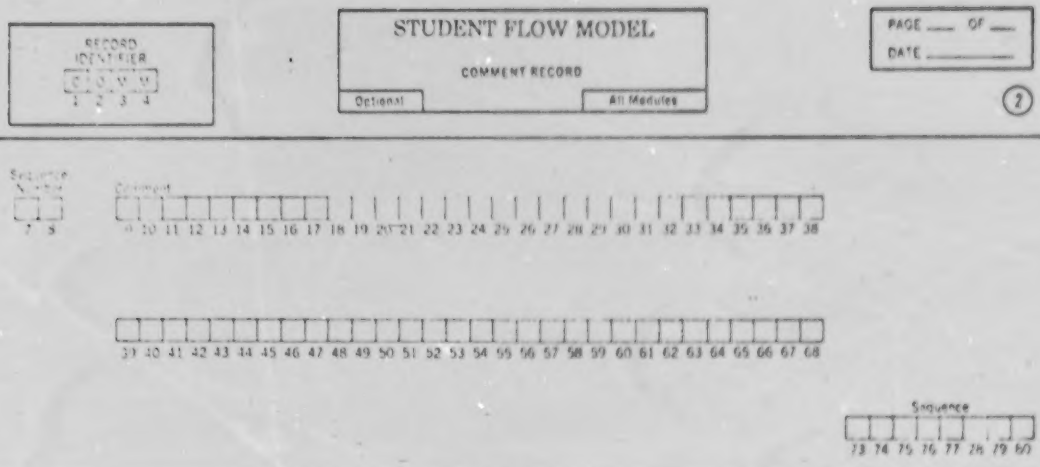
This section describes the input required by the ADMISSIONS MODULE and the reports available from it.

If the HISTORY MODULE has been used to develop historical data, input forms (2) through (8) below already will have been prepared. The Student Flow Model SFM-IA System Documentation Technical Report No. 41B describes how this information is transferred between modules.

(2) Comments

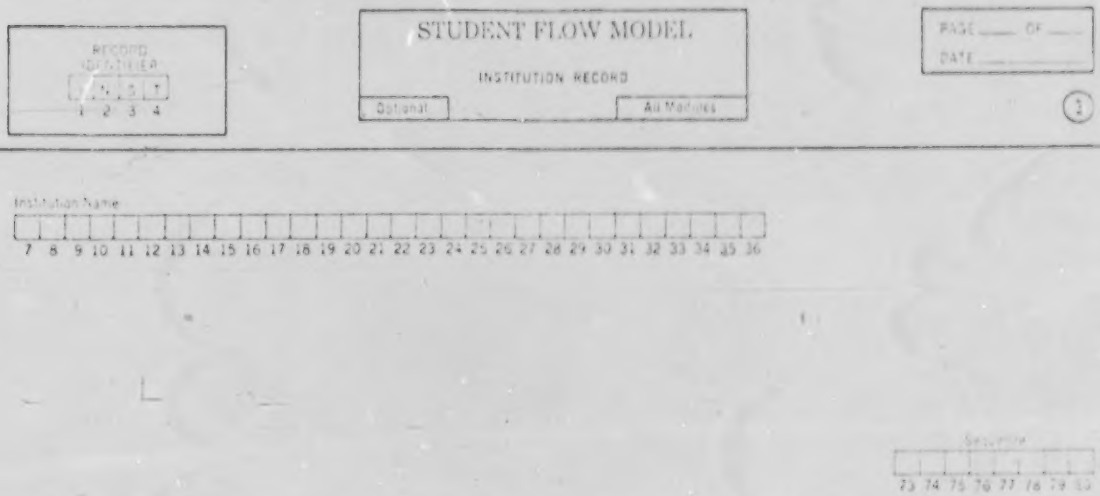
An execution of the system often incorporates a particular set of assumptions or specifications. Up to fifty lines of comments may be used as input describing these assumptions for a run. These comments are printed on the first page of the report set.

The comment records will be sorted on the Sequence Number field. If the Sequence Number is blank the sorting sequence will be the order of input.


RECORD IDENTIFIER
C O M M
1 2 3 4
STUDENT FLOW MODEL
COMMENT RECORD
Optional
All Modules
PAGE ___ OF ___
DATE _____
2
Sequence Number
Comment
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38
39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68
Sequence
73 74 75 76 77 78 79 80
COMMENTS
Sequence Number: The comment records will be sorted on the SEQUENCE NUMBER. If the SEQUENCE NUMBER is blank, the sorting sequence will be the order of input. Up to fifty comment records may be supplied. Sequence numbers must be between 1 and 50, inclusive.
Comment: Remarks entered in positions 9-68 apply to the database being created. These remarks will be printed preceding the reports produced by the system.

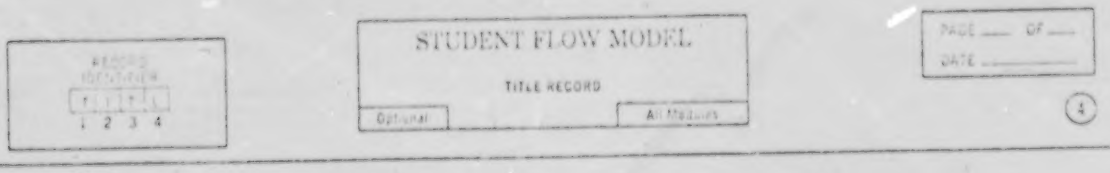
3 Institution Name

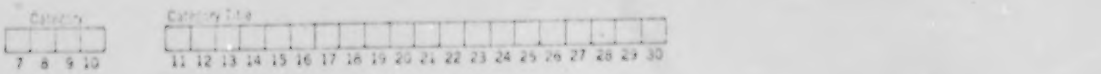
This input provides the name of the institution for use on reports.

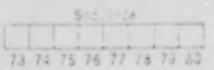

RECORD IDENTIFIER
I N S T
1 2 3 4
STUDENT FLOW MODEL
INSTITUTION RECORD
Optional
All Modules
PAGE ___ OF ___
DATE _____
3
Institution Name
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
Sequence
73 74 75 76 77 78 79 80
COMMENTS
Enter institution name (centered)

(4) Title Record

This input provides the system with alternate titles for certain categories used in the model. For example, if an institution typically uses the term "major" rather than "student program," "major" can be specified as the title of the category via this input.







COMMENTS

PURPOSE: This input provides optional titles for the categories shown below. If a title is not supplied for a category, the default title is used.

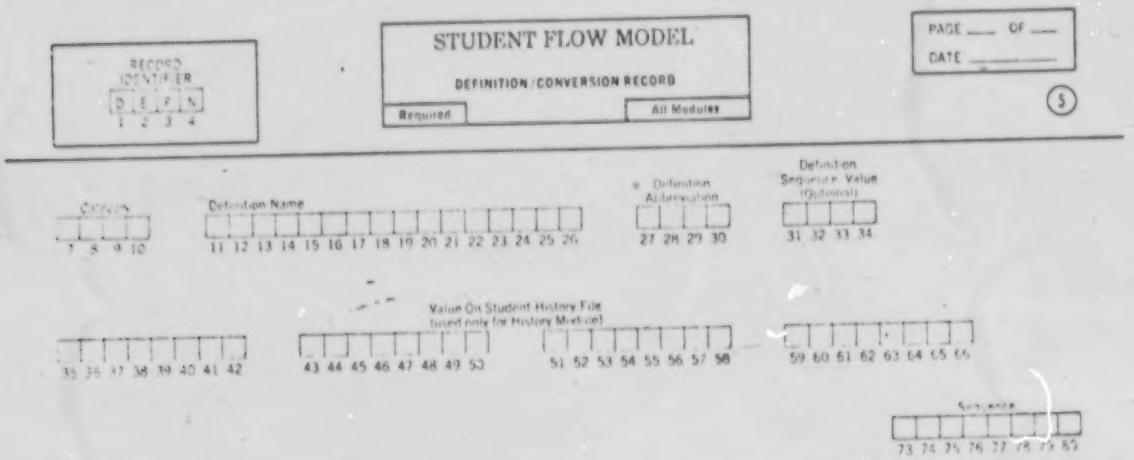
CATEGORY	DEFAULT
SIMP	SIMULATION
SPCD	PROGRAM
PROG	STUDENT PROGRAM
STLV	STUDENT LEVEL
NEWS	NEW STUDENTS
EXIT	EXITING STUDENTS

NOTE: In some instances these titles will be truncated to 12 characters.

(5) Definitions

The Definition Record is used to define Source Populations, Student Levels, and Exiting Categories. This record also contains the conversion codes for converting values on the historical data file to one of the defined categories.

Multiple DEFN records may be used to enter values to be converted to any one Source Population, Student Level, or Exiting Category.


RECORD IDENTIFIER
D E F N
1 2 3 4
STUDENT FLOW MODEL
DEFINITION/CONVERSION RECORD
Required
All Modules
PAGE ___ OF ___
DATE _____
5
Category
7 8 9 10
Definition Name
11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
* Definition Abbreviation
27 28 29 30
Definition Sequence Value (Optional)
31 32 33 34
35 36 37 38 39 40 41 42
Value On Student History File (used only for History Module)
43 44 45 46 47 48 49 50
51 52 53 54 55 56 57 58
59 60 61 62 63 64 65 66
73 74 75 76 77 78 79 80

COMMENTS

PURPOSE: The input provides the system with names and abbreviations of the categories listed below, and for the HISTORY MODULE only, the values on the STUDENT HISTORY FILE that convert to each defined category. These labels are used by the system for linking and identifying data elements for calculating and/or reporting.

CATEGORY	DATA	MAXIMUM SEQUENCE*
SPOP	Source Population	900
SLEV	Student Level	15
EXIT	Exiting Category	900

DEFINITION ABBREVIATION: This data item may be alphabetic or numeric. It supplies the system with the codes which will be used to identify Source Populations, Student Levels, and Exiting Categories in the input data.

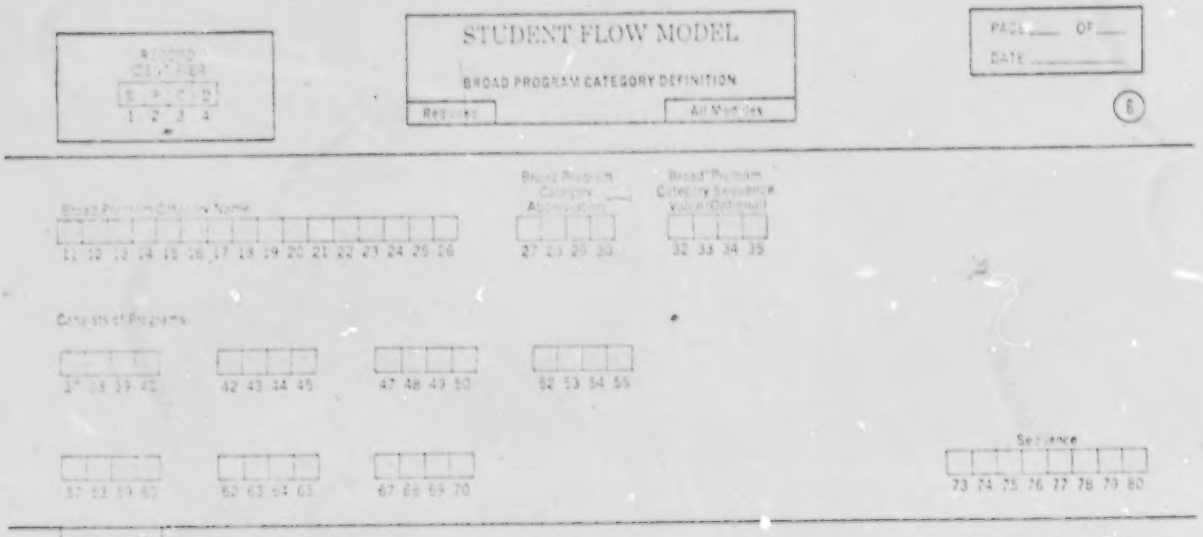
DEFINITION SEQUENCE VALUE: This data item may be alphabetic or numeric. It is used to explicitly define the sorting sequence for each of the above data categories. If left blank, the abbreviation field will be used as the sequence value.

NOTE:
- Multiple DEFN records may be used to enter values assigned to any one Source Population, Student Level or Exiting Category.
- HISTORY MODULE only. If none of the value fields for a source population record contains "$$ITEM" (left justified), all source population elements on the STUDENT HISTORY FILE not otherwise defined will be assigned to the source population specified by the definition abbreviation. The same code may be used to assign other non-listed student level elements.

* Maximum number of DEFN cards for each group when executing the History Module.

(6) Broad Program Category Names

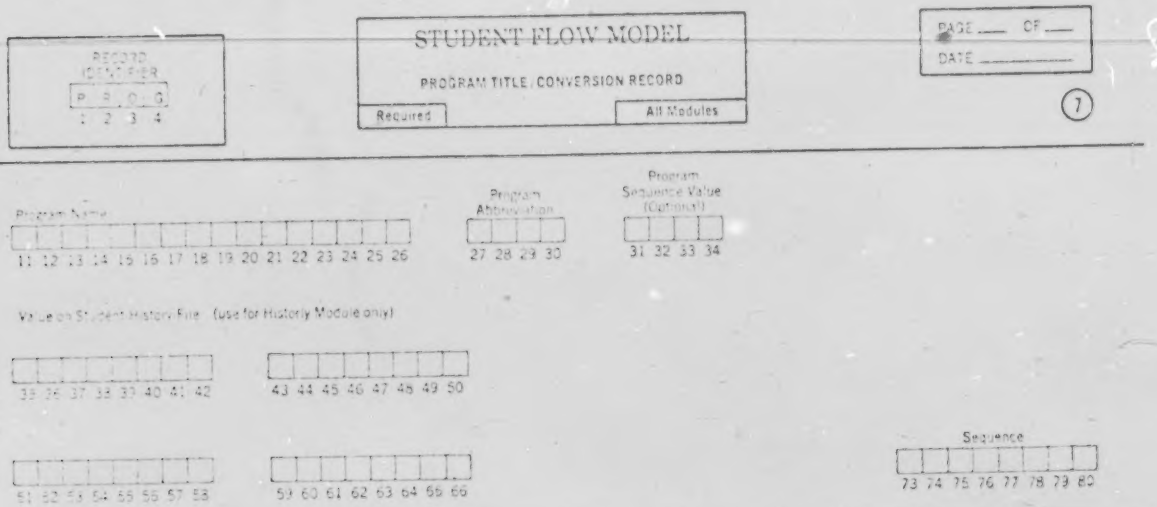
This input provides the system with names and abbreviations for Broad Program Categories. The Programs that make up each Broad Program Category also are specified on this record.



Programs that are not explicitly linked to a Broad Program Category with this record are placed in an "Undefined" program category that is automatically generated by the system. The system also automatically generates a pseudo Broad Program Category within which exiting exiting categories defined on input form (5) are placed. The abbreviation for this Broad Program Category is 'EXIT'. This abbreviation should therefore not be supplied by the user.

(7) Program Names

This input provides the system with names and abbreviations for Program Names and the values for converting entries on the historical file to one of the defined categories.


RECORD IDENTIFIER
P R O G
1 2 3 4
STUDENT FLOW MODEL
PROGRAM TITLE/CONVERSION RECORD
Required
All Modules
PAGE ___ OF ___
DATE _____
7
Program Name
11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Program Abbreviation
27 28 29 30
Program Sequence Value (Optional)
31 32 33 34
Value on Student History File (use for Historly Module only)
35 36 37 38 39 40 41 42
43 44 45 46 47 48 49 50
51 52 53 54 55 56 57 58
59 60 61 62 63 64 65 66
Sequence
73 74 75 76 77 78 79 80

COMMENTS

PURPOSE: This input provides the system with names and abbreviations for program titles. These labels are used by the system for linking and identifying data elements for accessing and/or reporting.

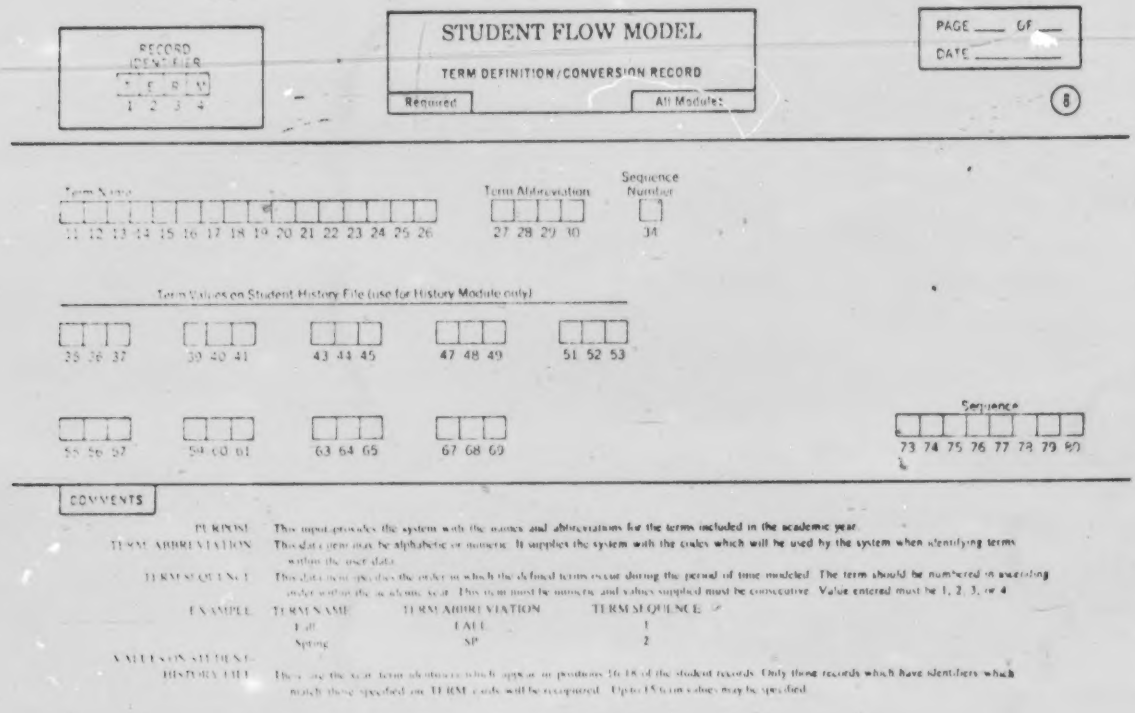
PROGRAM ABBREVIATION: This data item may be alphabetic or numeric. It supplies the system with the codes which will be used when identifying programs within the user data.

PROGRAM SEQUENCE VALUE (OPTIONAL): This data item may be alphabetic or numeric. It is used to explicitly define the sorting sequense of the programs. If left blank, the abbreviation field will be used as the sequence value.

NOTE:
- Multiple PROG records may be used to enter VALUES ON STUDENT HISTORY FILE for any one program.
- HISTORY MODULE only: If one of the value fields contains "$$ ELSE" (left justified) all programs elements on the STUDENT HISTORY FILE not otherwise defined will be assigned to the program on this record.

(8) Term Definitions

This input provides the system with the names and abbreviations for the Terms included in the year and the values for converting entries on the historical file to one of the defined categories.



The remaining input for the ADMISSIONS MODULE specifies how applicants from a Source Population are converted to newly enrolled students in a Program/Student Level combination. This information may be expressed in several alternative ways. The following description, incorporating the input forms, uses one set of alternatives (as described in Section I above). Following this basic description, additional options are introduced.

(12) New Applicant Estimates

This input provides the system with the estimated number of new applicants in each Source Population. This data must be supplied for each Term defined on input coding form (8) .

RECORD IDENTIFIER: N A P L (1 2 3 4)

STUDENT FLOW MODEL

NEW APPLICANT ESTIMATES

Required if (13) is Used | Admissions Module

PAGE ___ OF ___

DATE _____

(12)

Term Abbreviation (7 8 9 10)	Source Population Abbreviation (11 12 13 14)	Estimated Number of Applicants (15 16 17 18 19 20)	Source Population Abbreviation (21 22 23 24)	Estimated Number of Applicants (25 26 27 28 29 30)
	(31 32 33 34)	(35 36 37 38 39 40)	(41 42 43 44)	(45 46 47 48 49 50)
	(51 52 53 54)	(55 56 57 58 59 60)	(61 62 63 64)	(65 66 67 68 69 70)

Sequence (73 74 75 76 77 78 79 80)

COMMENTS

PURPOSE: This data item provides the system with the estimated number of new applicants from each Source Population. For a given term and Source Population either (12) and (13) or else (14) is used.

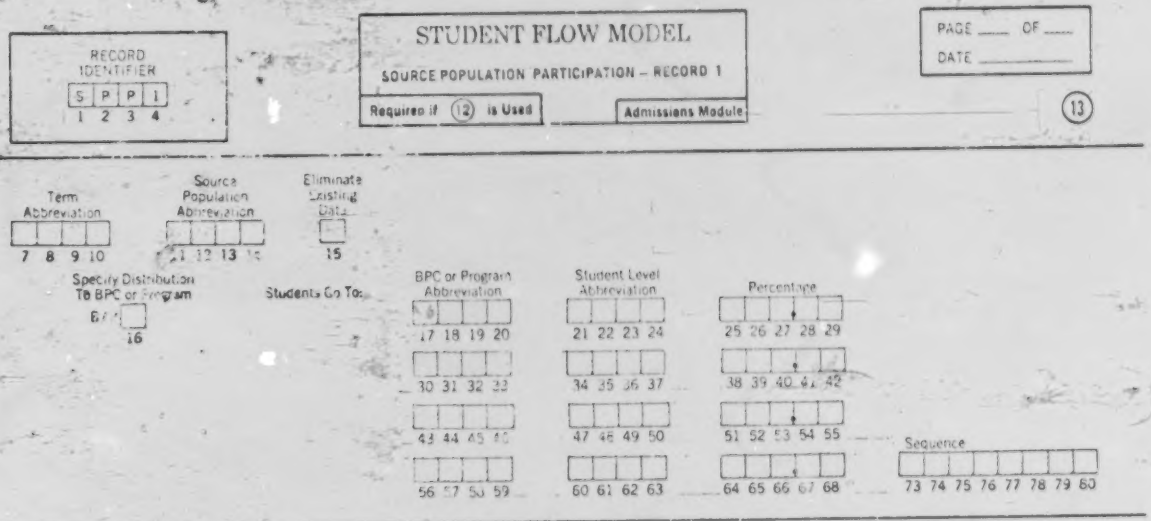
TERM: This data item must be consistent with the term being executed as specified on the control record SFM-1A.

ESTIMATED NUMBER OF APPLICANTS: Must be a right-justified numeric value. More than one record may be supplied if necessary.

(13) Source Population Participation-1

This input provides the system with the percentages for distributing the applicants in each Source Population to Levels within Broad Program Categories.

If the Eliminate Existing Data field contains a "Y," any previous distribution data for this Source Population/Term will be eliminated. Any other value in this field will result in the distribution data being modified by this new input.



COMMENTS

PURPOSE: This data item describes the Broad Program Categories (or Programs) that students from a Source Population apply to for a given term.

TERM: This data item must be consistent with the term being executed as specified on the control record SFM-1A.

ELIMINATE EXISTING DATA: Enter 'Y' to delete all previous data for this Source Population and term.

SPECIFY DISTRIBUTION TO BPC OR PROGRAM: Enter 'B'—Distribution to Broad Program Categories
'P'—Distribution to Programs

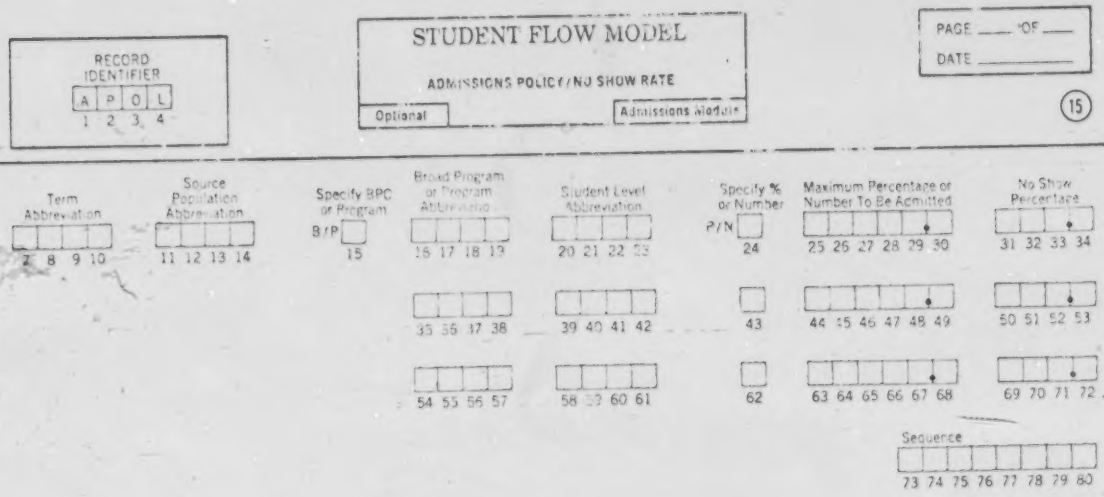
NOTE:
- For a given term and Source Population all students must go either to Broad Program Categories or else directly to Programs.
- See form (14) which is used in conjunction with this form.
- The sum of the percentages for a source population and term must total 100.00%.
- This record is generated by the HISTORY MODULE.

(15) Admissions Policy/No-Show Rate

This optional input provides the system with an Admissions Policy and/or a No-Show Rate for each Source Population/Term distribution.

The Specify Percent or Number field specifies whether the maximum number of students to be admitted is expressed as an absolute number or as a percentage of the students applying. If this item is not provided as input for a receiving category, all students applying will be admitted.

The default value for the No-Show Percentage field is zero percent, that is, all students admitted will be enrolled.



COMMENTS

PURPOSE: This data item specifies the percentage or maximum number of students to be admitted from each Source Population and term.

TERM: This data item must be consistent with the term being executed as specified on the control record.

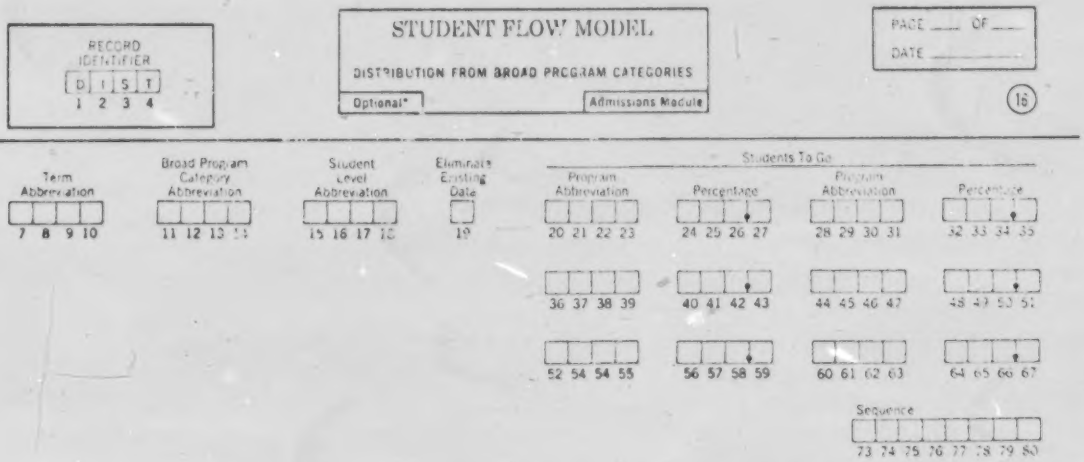
SPECIFY BPC OR PROGRAM: This data item must be identical to the distribution specified for the Source Population Subset on input forms (12) and (13).
'B'—Distribution to Broad Program Categories. 'P'—Distribution to Programs. (Defaults to 'P')

TO BE ADMITTED SPECIFY % OR NUMBER: 'P'—Percentage to be admitted. 'N'—Number to be admitted.

NOTE:
- Enter either a percentage or a maximum number to be admitted to a given student level within a Broad Program Category or Program.
- Default admission percentage is 100%.
- Default no-show percentage is 0%.

(16) Distribution from Broad Program Categories

Inputs (12), (13), and (15) described above enable the system to determine the number of students who will actually enroll in each Broad Program Category/Student Level. This input provides the system with the distribution pattern from Broad Program Category/Student Level to Program/Student Level.



COMMENTS

PURPOSE — This data item specifies the distribution of Students from a Broad Program Category and level to Programs.
TERM — This data item must be consistent with the term being executed as specified on the control record.
ELIMINATE EXISTING DATA — Enter 'Y' to delete all previous data (from old iteration or history module) for the Broad Program Category and term specified on this record.
NOTE — • The sum of the percentages for a Broad Category and term must total 100.%.
• This record is generated by the HISTORY MODULE.

*Required if (12) or (13) specify distribution from a source Population to Broad Program Categories.

(14) Source Population Participation-2

This input provides the system with the absolute number of students in each Source Population that will apply to each Broad Program Category/Student Level (or to each Program/Student Level). Inputs (12) and (13) must not be used if this input is used for a particular Source Population. Input (15) --Admissions Policy/No-Show Rate-- may still be supplied.

RECORD IDENTIFIER: S P P 2 (1 2 3 4)

STUDENT FLOW MODEL

SOURCE POPULATION PARTICIPATION--Record 2

Not Required if (12) & (13) are Used | Admissions Module

PAGE ____ OF ____

DATE _____

(14)

Term Abbreviation (7 8 9 10)	Source Population Abbreviation (11 12 13 14)	Eliminate Existing Data (15)	Specify Distribution To BPC or Program (16)
			B/P

Students Go To:

BPC or Program Abbreviation	Student Level Abbreviation	Number	Sequence
17 18 19 20	21 22 23 24	25 26 27 28 29	73 74 75 76 77 78 79 80
30 31 32 33	34 35 36 37	38 39 40 41 42	
43 44 45 46	47 48 49 50	51 52 53 54 55	
56 57 58 59	60 61 62 63	64 65 66 67 68	

COMMENTS

PURPOSE: This record establishes fixed estimates of new applicants from a Source Population for each Broad Program Category or Program. For a given term and source population either (12) and (13) or else (14) is used.

TERM: This data item must be consistent with the term being executed as specified on the control record.

ELIMINATE EXISTING DATA: Enter 'Y' to delete all previous data for this source population and term.

SPECIFY DISTRIBUTION TO BPC OR PROGRAM: Enter 'B'—Distribution to Broad Program Categories.
'P'—Distribution to Programs.

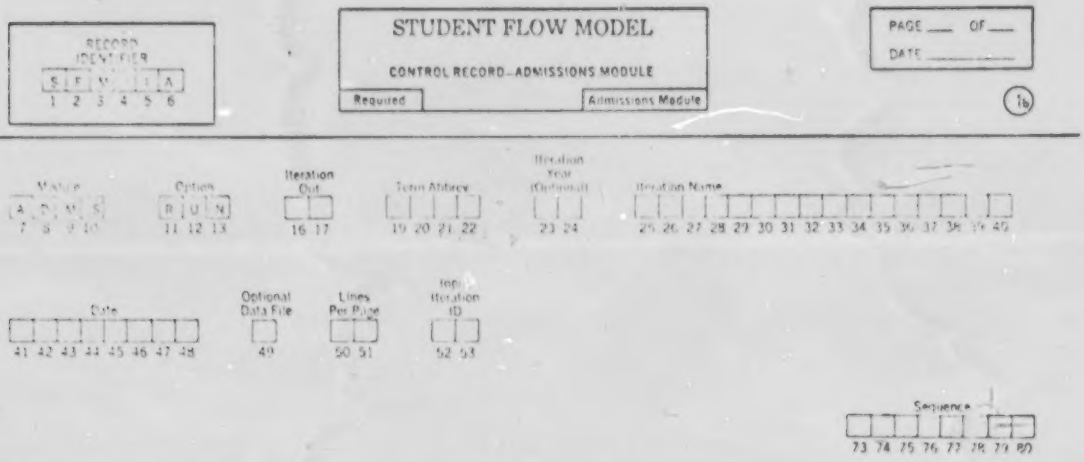
NUMBER: Must be right-justified.

NOTE: ● For a given term and Source Population, all students must go either to Broad Program Categories or else directly to Programs.

1b Control Record - ADMISSIONS MODULE

This input specifies a run of the ADMISSIONS MODULE.

Appendix I contains a more technical description of the use of the Iteration Out, Term Abbrev., Iteration Year, and Input Iteration ID fields and their relationships to other modules.



COMMENTS

PURPOSE — This input specifies an execution of the ADMISSIONS MODULE

ITERATION OUT — This alpha-numeric identifies the set of data to be created and saved for use by the TRANSITION MODULE.

TERM ABBREV. — A term abbreviation which is combined with ITERATION OUT. Must correspond to one of the term abbreviations on input form (3).

ITERATION YEAR — Optional alpha-numeric which is used in report headings by programs that use the data created by this run.

OPTIONAL DATA FILE — Enter Y if optional input data file is to be read.

LINES PER PAGE — Lines per page (not including header) on reports. (Default = 55)

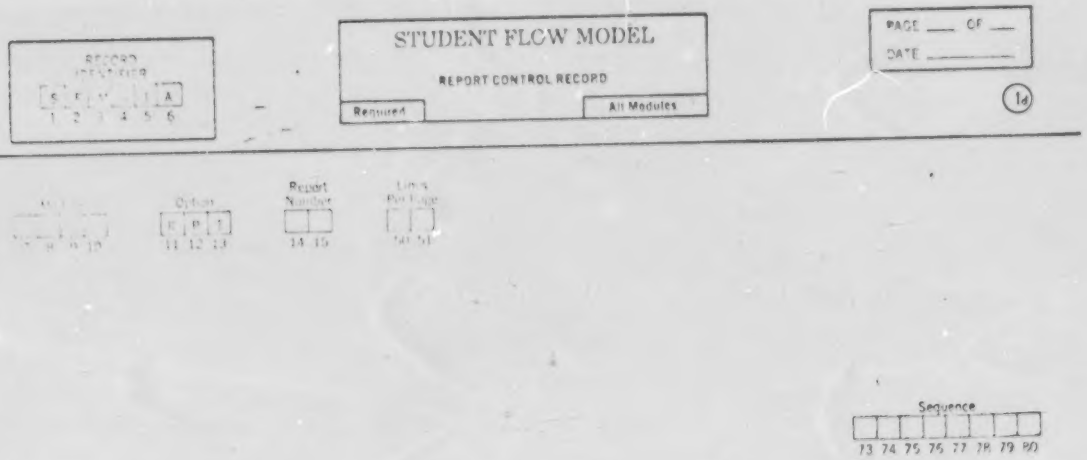
INPUT ITERATION ID — Enter ID of previously run iteration that contains source population participation data, Bristol program category distribution data, etc. This must be data produced by the HISTORY MODULE or by a previous run of the ADMISSIONS MODULE. This data will be read from the OLD SUCCESS.

1d Report Control Record

This input requests one or more reports to be produced.

The Report Number field should contain one of the numbers shown in Table 3 to produce the report indicated (or '**' to produce all reports).

Note that several ADMISSIONS MODULE reports resemble reports produced by the HISTORY MODULE. History Report 3 for example, shows the historical distribution from Broad Program Category and Student Level to specific Programs and Student Levels. Admissions Report 10 shows this same information for projected results rather than historical data.



COMMENTS

PLANNING — This input requests one or more reports to be produced and permits overriding the default lines per page value.

MODULE — Enter HIST, ADMS or TRAN to indicate the module reports are being requested from.

REPORT NUMBER — Enter number of report requested. The HISTORY MODULE produces reports 1-7, the ADMISSIONS MODULE reports 8-11 and the TRANSITION MODULE reports 12-16. If REPORT NUMBER contains '**' all reports for the module will be produced.

LINES PER PAGE — Enter the number of lines to print on each page. (Default = 55)

NOTE — Provide one input record for each report requested unless the '**' REPORT NUMBER option is used.

Table 3

ADMISSIONS MODULE Reports

Report Number	Report Title	Description
8	Applications, Admissions, Enrollments	Shows for each Source Population the number of students applying, admitted and enrolling in each Broad Program Category and Student Level (or in each Program and Student Level if application is to specific Programs).
9	Source of New Enrollees	Shows for each Broad Program Category the number and percent of students coming from each Source Population.
10	Distribution of Broad Program Category	Shows for each Broad Program Category and Student Level the number and percent of students going to each Program and Student Level.
11	Projected New Enrollees	Shows for each Program and Student Level the projected number of new enrollees.

The reports produced by the ADMISSIONS MODULE are shown in Figures 15 through 18 along with explanatory comments.

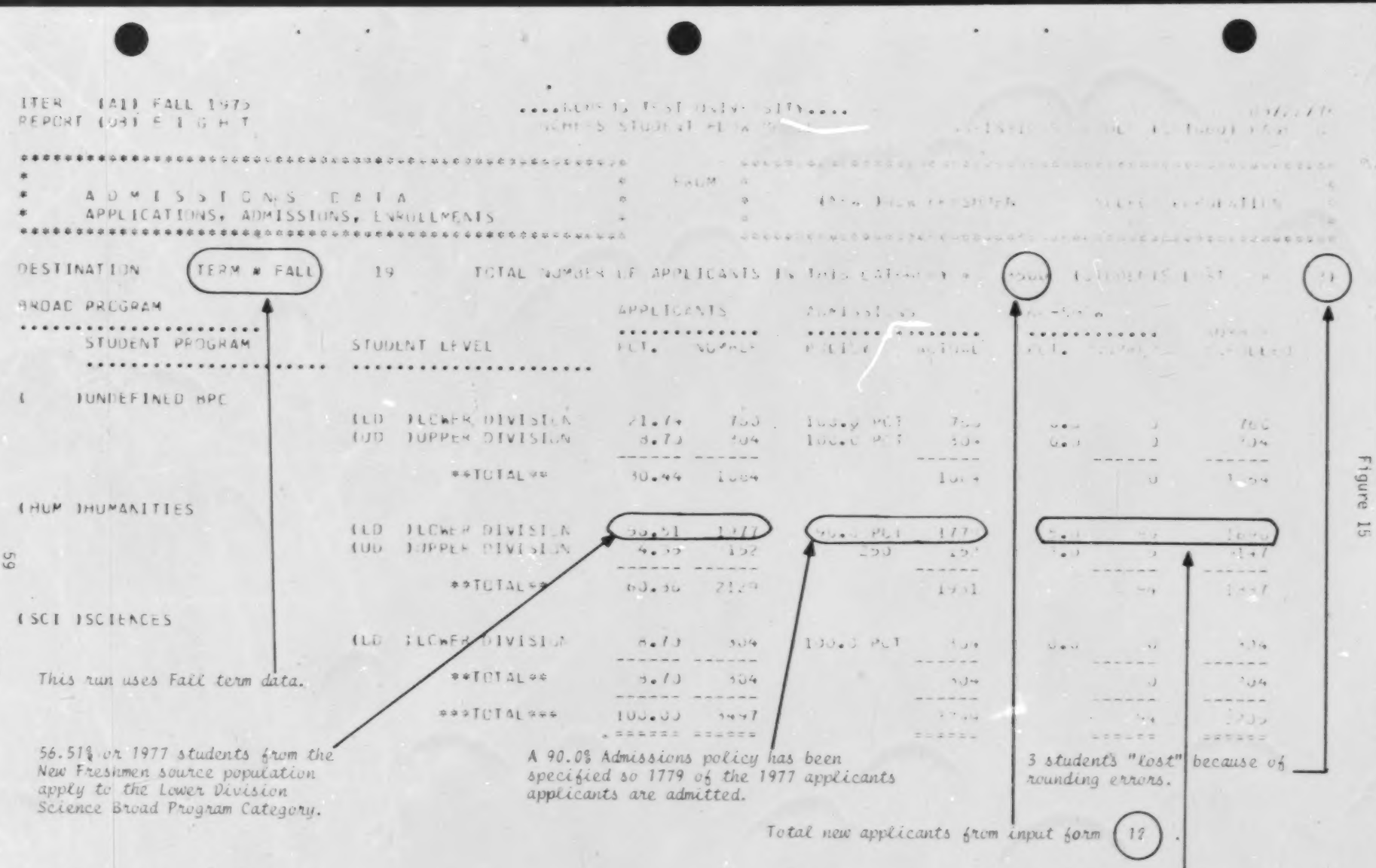

ITER (A1) FALL 1975
REPORT (081 E I G H T
A D M I S S I O N S D A T A
APPLICATIONS, ADMISSIONS, ENROLLMENTS
DESTINATION
TERM * FALL
19
BROAD PROGRAM
STUDENT PROGRAM
STUDENT LEVEL
APPLICANTS
(UNDEFINED BPC
(LD LOWER DIVISION
(UD UPPER DIVISION
TOTAL
(HUM HUMANITIES
(SCI SCIENCES
TOTAL
This run uses Fall term data.
56.51% or 1977 students from the New Freshmen source population apply to the Lower Division Science Broad Program Category.
A 90.0% Admissions policy has been specified so 1779 of the 1977 applicants applicants are admitted.
3 students "lost" because of rounding errors.
Total new applicants from input form (1?)
5.0% or 89 of the students admitted are "no-shows" so the number of students actually enrolling is 1690.

Figure 15

ITER (A1) FALL 1975
REPORT (09) N I N E

....NORMS TEST UNIVERSITY....
NORMS STUDENT FLOW MODEL

***

ITER (A1) FALL 1975 ....ACHEMS TEST UNIVERSITY....
REPORT (10) T E N ACHEMS STUDENT FLOW MODEL

***

ITER (A1) FALL 1975
REPORT (11) E L E V E N

....Modern Test University....
MODERN STUDENT DATA MART

****
*
* A D M I S S I O N S C A T A
* PROJECTED NEW ENROLLEES
*
****

STUDENT PROGRAM	STUDENT LEVEL	(1)FALL No. OF STUDENTS
(MATH)MATHEMATICS	(LD)LOWER DIVISION	780
	(UD)UPPER DIVISION	304
	TOTAL	1084
	TOTAL	1084

STUDENT PROGRAM	STUDENT LEVEL	(1)FALL No. OF STUDENTS
(ART)ART	(LD)LOWER DIVISION	459
	(UD)UPPER DIVISION	464
	TOTAL	1223
(EDUC)EDUCATION	(LD)LOWER DIVISION	573
(HIST)HISTORY	(LD)LOWER DIVISION	859
	(UD)UPPER DIVISION	182
	TOTAL	1041
	TOTAL	2837

← 859 total new enrollees (from all Source Populations) are projected for the Lower Division History program.

Figure 18

SECTION VI

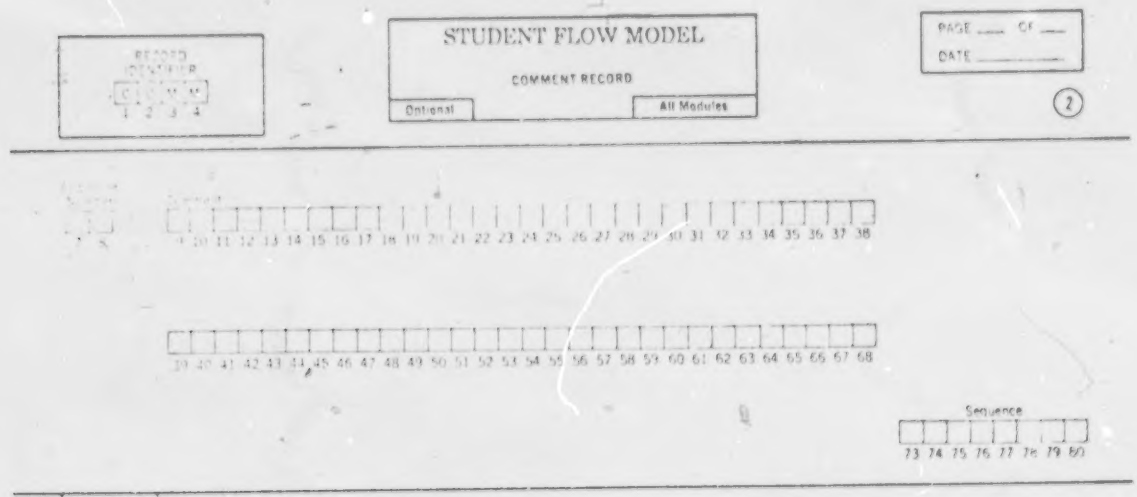
IMPLEMENTING THE SFM-IA TRANSITION MODULE

This section describes the input required by the TRANSITION MODULE and the reports available from it. If either the HISTORY MODULE or the ADMISSIONS MODULE have been used, input forms (2) through (8) already will have been prepared.

(2) Comments

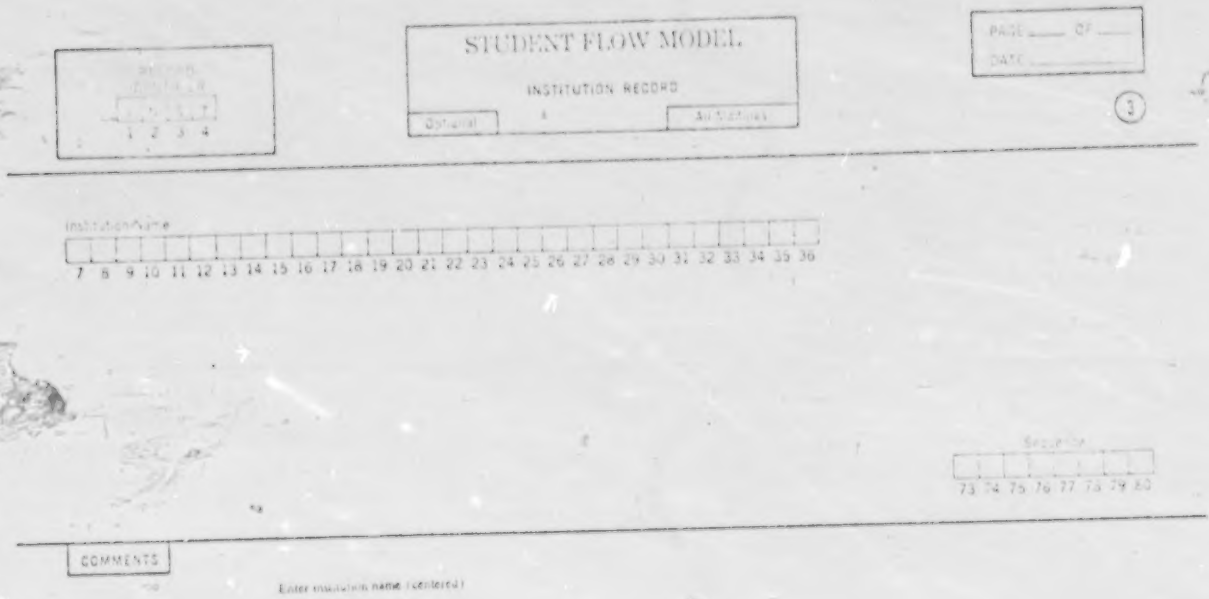
An execution of the system often incorporates a particular set of assumptions or specifications. Up to fifty lines of comments may be used as input describing these assumptions for a run. These comments are printed on the first page of the report set.

The comment records will be sorted on the Sequence Number field. If the Sequence Number is blank the sorting sequence will be the order of input.



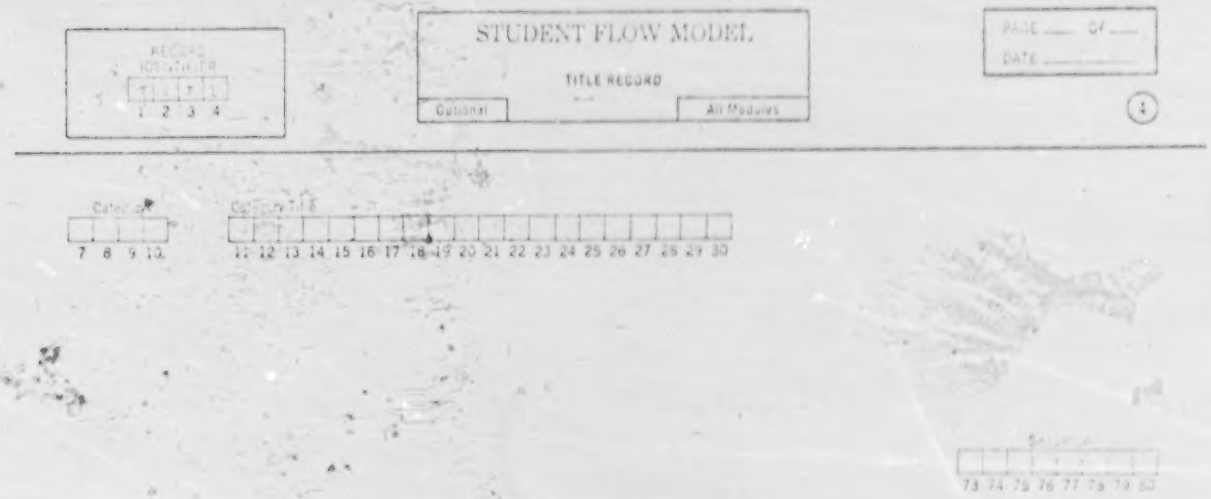
(3) Institution Name

This input provides the name of the institution for use on reports.



(4) Title Record

This input provides the system with alternate titles for certain categories used in the model. For example, if an institution typically uses the term "major" rather than "student program," "major" can be specified as the title of the category via this input.



COMMENTS

PURPOSE: This input provides optional titles for the categories shown below. If a title is not supplied for a category, the default title is used.

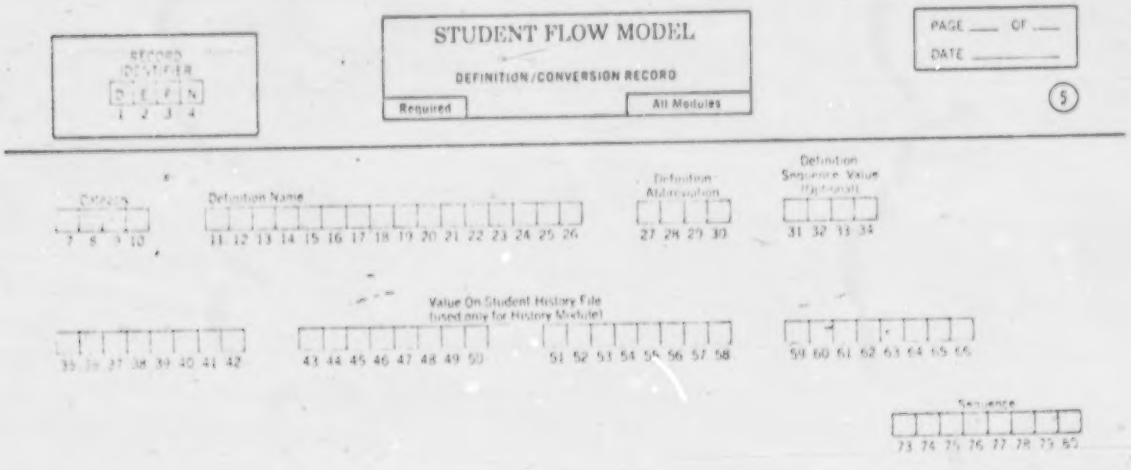
CATEGORY	DEFAULT TITLE
SOCP	SOCIO-ECONOMIC CLASSIFICATION
BCLG	BROAD PROGRAM
PROG	STUDENT PROGRAM
STLV	STUDENT LEVEL
NEWS	NEW STUDENTS
*EXIT	EXITING STUDENTS

NOTE: In some instances these titles will be truncated to 12 characters.

5 Definitions

The Definition Record is used to define Source Populations, Student Levels, and Exiting Categories. This record also contains the conversion codes for converting values on the historical data file to one of the defined categories.

Multiple DEFN records may be used to enter values to be converted to any one Source Population, Student Level, or Exiting Category.


RECORD IDENTIFIER
D E F N
1 2 3 4
STUDENT FLOW MODEL
DEFINITION/CONVERSION RECORD
Required
All Modules
PAGE ___ OF ___
DATE _____
5
Option
5 6 7 8 9 10
Definition Name
11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Definition Abbreviation
27 28 29 30
Definition Sequence Value (Optional)
31 32 33 34
Value On Student History File (used only for History Module)
35 36 37 38 39 40 41 42
43 44 45 46 47 48 49 50
51 52 53 54 55 56 57 58
59 60 61 62 63 64 65 66
Sequence
73 74 75 76 77 78 79 80

COMMENTS

PURPOSE The input records the system with names and abbreviations of the categories listed below, and for the HISTORY MODULE only, the values on the STUDENT HISTORY FILE that correspond to each defined category. These labels are used by the system for listing and identifying data elements for subsetting and/or reporting.

OPTION	DATA	MAXIMUM NUMBER*
SPOP	Source Population	900
SLEV	Student Level	15
EXIT	Exiting Category	900

DEFINITION ABBREVIATION This data item may be alphabetic or numeric. It supplies the system with the codes which will be used to identify Source Populations, Student Levels, and Exiting Categories in the next data.

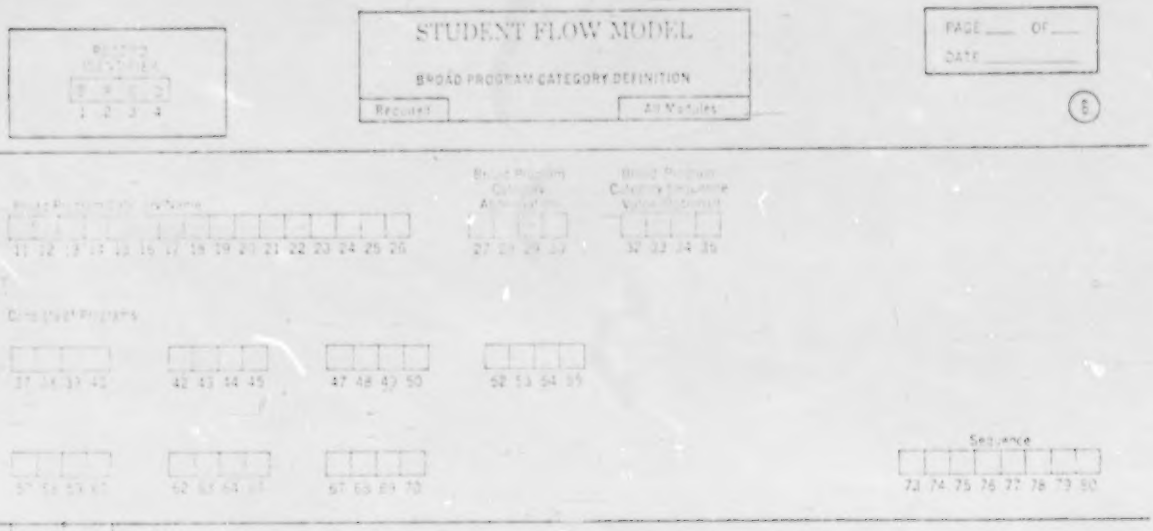
DEFINITION SEQUENCE VALUE This data item may be alphabetic or numeric. It is used to explicitly define the sorting sequence for each of the above data categories. If left blank, the abbreviation field will be used as the sequence value.

NOTE
- Multiple DEFN records may be used to enter values assigned to any one Source Population, Student Level or Exiting Category.
- HISTORY MODULE only. If used the value is only for a source population record creation. SYSTEM-DEFI assigns all source population elements on the STUDENT HISTORY FILE not otherwise defined will be assigned to the source population specified by this definition record. The same code may be used to assign different student level elements.

* Maximum number of the values for each type allowed in the History Module.

(6) Broad Program Category Names

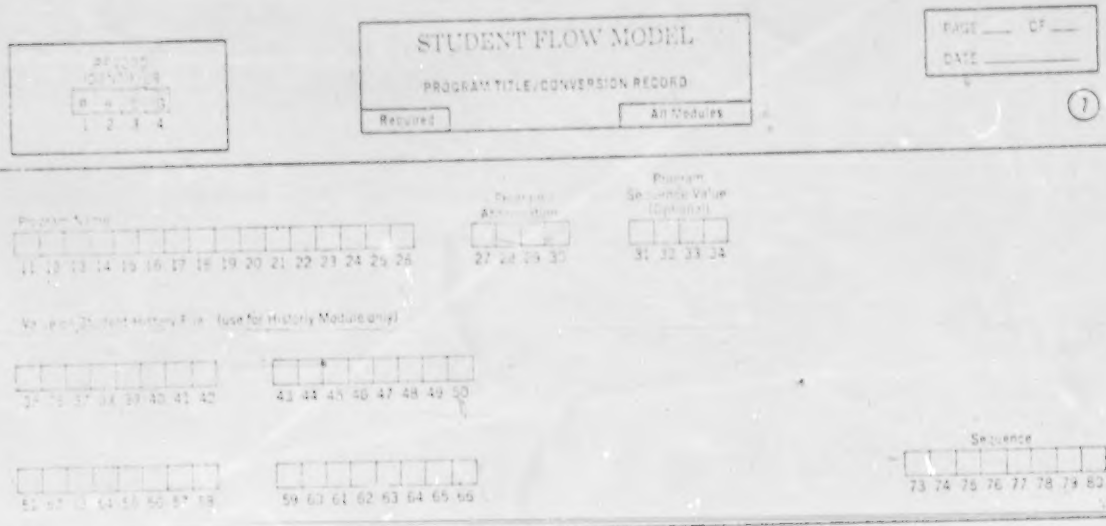
This input provides the system with names and abbreviations for Broad Program Categories. The Programs that make up each Broad Program Category also are specified on this record.



Programs that are not explicitly linked to a Broad Program Category with this record are placed in an "Undefined" program category that is automatically generated by the system. The system also automatically generates a pseudo Broad Program Category within which exiting categories defined on input form (5) are placed. The abbreviation for this Broad Program Category is 'EXIT'. This abbreviation should therefore not be supplied by the user.

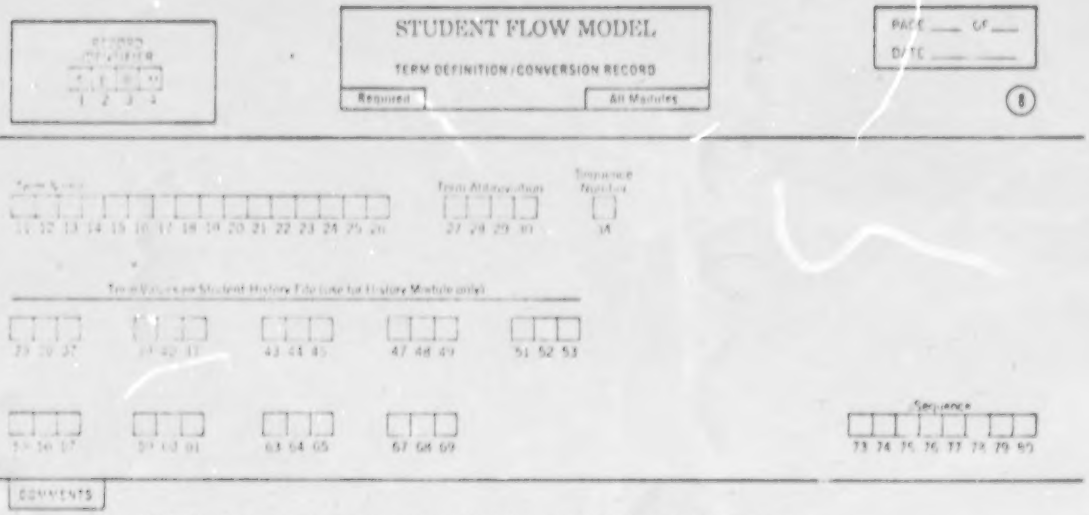
(7) Program Names

This input provides the system with names and abbreviations for Program Names and the values for converting entries on the historical file to one of the defined categories.



8 Term Definitions

This input provides the system with the names and abbreviations for the Terms included in the year and the values for converting entries on the historical file to one of the defined categories.



COMMENTS

PURPOSE: This input provides the system with the names and abbreviations for the terms included in the academic year.

TERM ABBREVIATION: This data item may be alphabetic or numeric. It supplies the system with the codes which will be used by the system when identifying terms within the user data.

TERM SEQUENCE: This data item specifies the order in which the defined terms occur during the period of time modeled. The term should be numbered in ascending order within each academic year. The term must be numeric and values supplied must be consecutive. Value entered must be 1, 2, 3, or 4.

EXAMPLE	TERM NAME	TERM ABBREVIATION	TERM SEQUENCE
	Fall	FALL	1
	Spring	SP	2

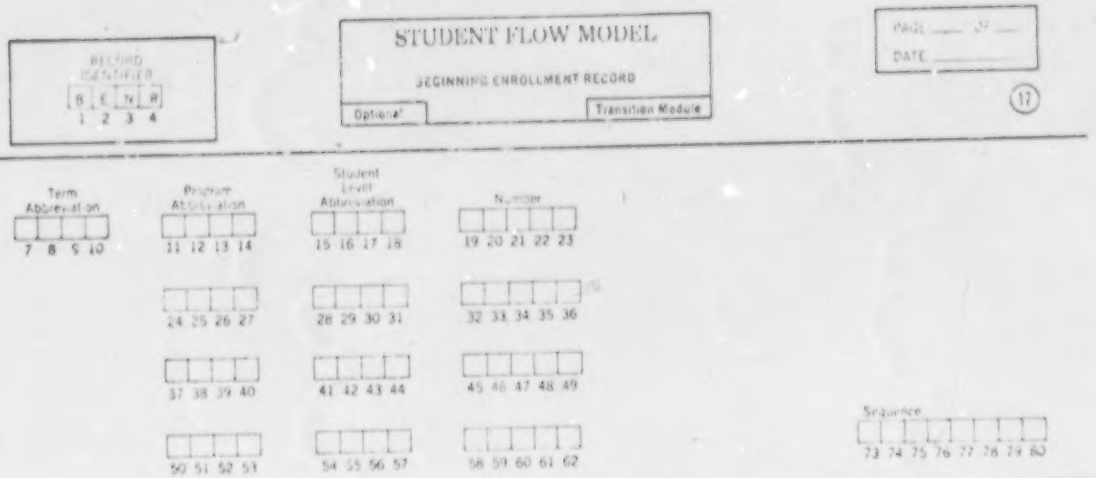
VALIDATION CRITERIA:

DISPOSITION: These are the only terms (abbreviations) which appear in positions 16-19 of the student records. Only those records which have identifiers which match those specified on TERM cards will be recognized. Up to 15 term values may be specified.

APRIL 1974

17 Beginning Enrollment

This input provides the system with the number of students in each Program/Student Level at the beginning of a run. Because the results of one iteration produce the beginning enrollments for the next iteration, this input typically is coded manually only for the first iteration to be run.



COMMENTS

PURPOSE: This data item specifies the beginning enrollment for a term in a Program and student level. This input is typically used only for the first term to be processed.

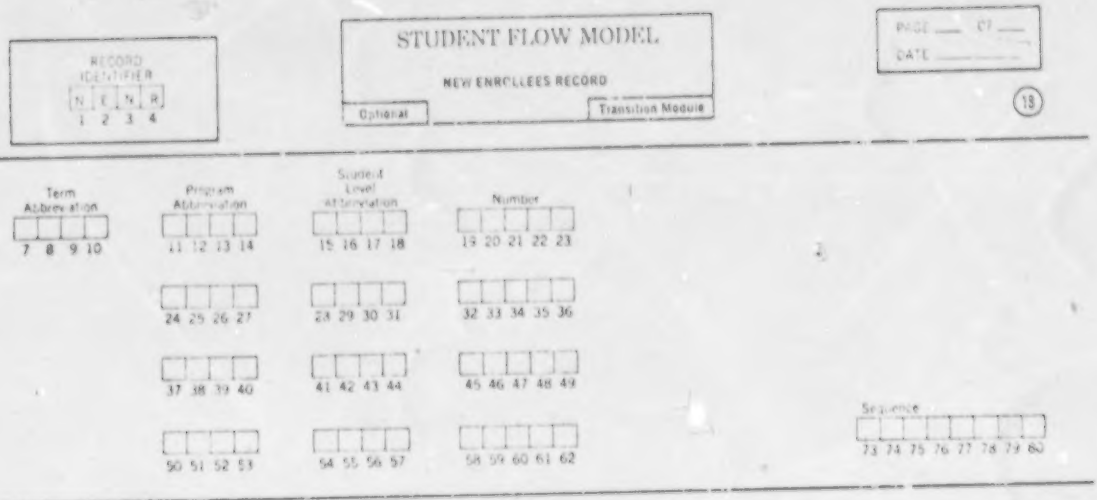
TERM: This data item must be coordinated with the term being executed as specified on the control record.

NUMBER: Must be right justified.

NOTE:
- If beginning enrollments in a program and student level for a term is not specified, a value of zero is used.
- While this input is optional, most users of the system will require beginning enrollment values to be entered.

(18) New Enrollees

This input provides the system with the number of newly enrolled students for each Program/Student Level. If the ADMISSIONS MODULE is used, this input will be provided by that module.

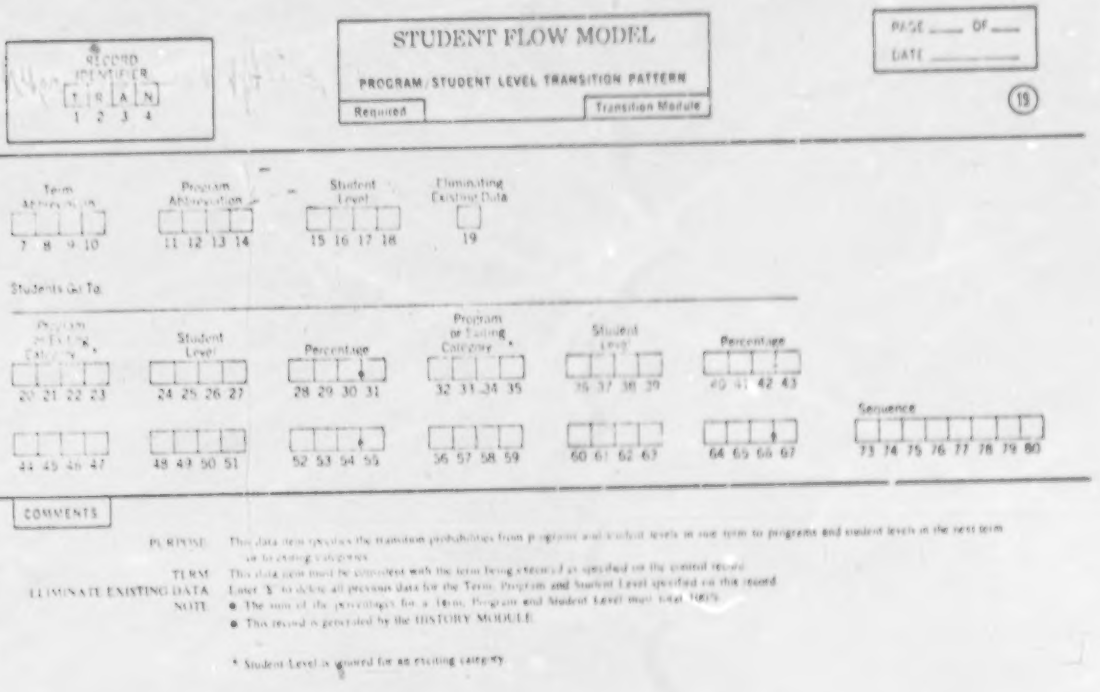


COMMENTS

PURPOSE: This data item specifies the number of new enrollees at the beginning of a term for a Program and Student Level.
TERM: This data item must be consistent with the term being executed as specified on the control record.
NUMBER: Must be right justified.
NOTE:
- If new enrollees in a program and student level for a term is not specified, a value of zero is used.
- This record is generated by the ADMISSIONS MODULE.

(19) Program Transition Data

This input provides the system with the transition data for each Program/Student Level. Note that transition data is labeled with a Term identifier but the actual transition takes place between the Term identified and the next Term. If two Terms--for example, Fall and Spring--are identified, "Fall" transitions actually occur between the Fall and Spring Terms.



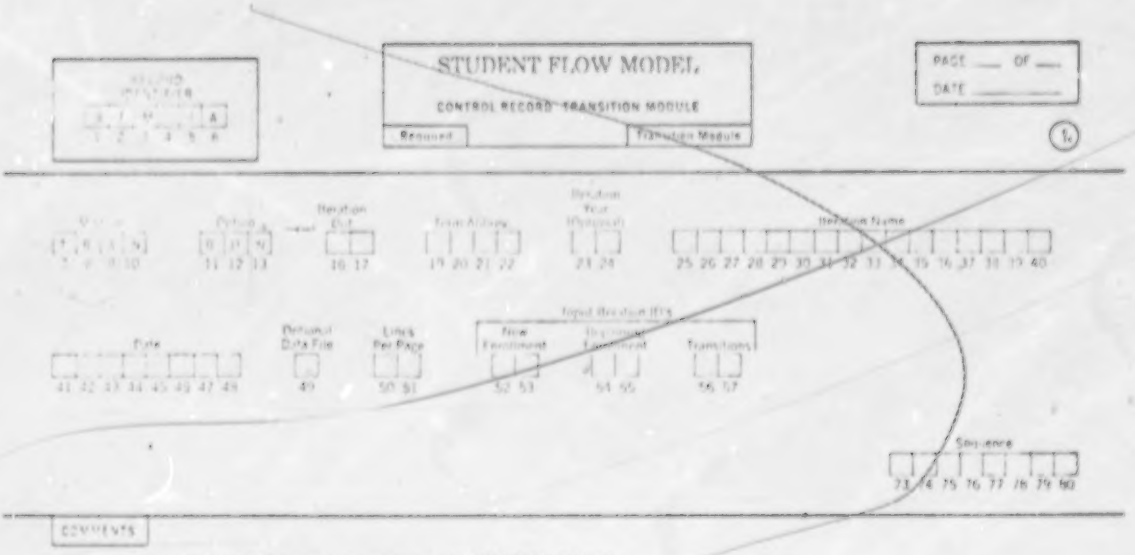
If the Eliminate Existing Data field contains a "Y," all existing data for this Program/Level/Term will be eliminated. Any other value will result in this data modifying existing data.

If transition data is not supplied for a Program/Level in which students are enrolled, these students will be continued in the same Program/Level in the next term.

1c Control Record - TRANSITION MODULE

This input specifies a run of the TRANSITION MODULE.

Appendix I contains a more techaical description of the Iteration Out, Term Abbrev., Iteration Year, and Input Iteration ID fields and their relationship to other modules.



1d Report Control Record

This input requests one or more reports to be produced.

The Report Number field should contain one of the numbers shown in Table 4 to produce the report indicated (or '**' to produce all reports).

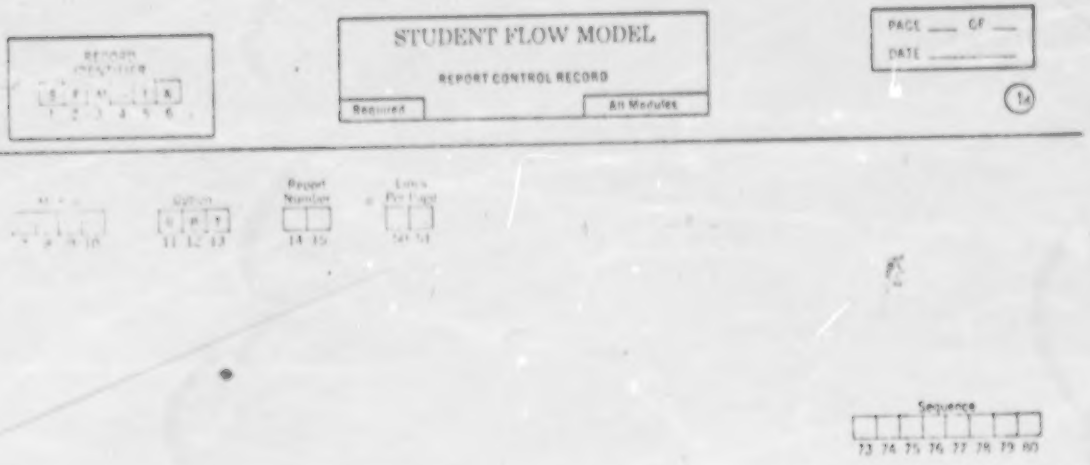


Table 4

TRANSITION MODULE Reports

Report Number	Report Title	Description
12	Enrollment Data	Shows for each Program and Student Level the projected number of beginning, new, and continuing students.
13	Transition from Student Program	Shows for each Program and Student Level the projected number of students exiting or continuing in the institution (by Program and Student Level).
14	Transition from Broad Program	Summarizes Report 13 data to show for each Broad Program Category the projected number of students exiting or continuing in the institution (by Broad Program Category and Student Level).
15	Source of Students for Student Program	Shows for each Program and Student Level the source of students (i.e., new enrollees by Source Population and Program and Student Level for continuing students).
16	Source of Students for Broad Program Category	Summarizes Report 15 data to show for each Broad Program Category and Student Level the source of students (i.e., new enrollees by Source Population and Broad Program Category and Student Level for continuing students).

The reports produced by the TRANSITION MODULE are shown in Figures 19 through 23 along with explanatory comments.

ITER (T1) FALL 1975 ....NORTHERN TEXAS UNIVERSITY.... 05/ 14/
REPORT (12) T W E L V E NORTHERN STUDENT FLOW MODEL TRANSITION PROBABILITIES 0700 0

****

* ENROLLMENT DATA *

****

BROAD PROGRAM

STUDENT PROGRAM	STUDENT LEVEL	FROM PREV TERM	NEW	TOTAL OF-1	RETAINED THIS TERM	TRANS- ITIONS	TOTAL THIS TERM
(UNDEFINED SPC							
(MATH)MATHEMATICS	(LD)LOWER DIVISION	50	760	810	694	57	751
	(UD)UPPER DIVISION	37	404	441	312	0	312
	TOTAL	87	1164	1251	1006	57	1063
(PE)PHYSICAL EDUC	(LD)LOWER DIVISION						
	TOTAL	0	0	0	0	0	0
	TOTAL	87	1164	1251	1006	57	1063
(HUM)HUMANITIES							
(ART)ART	(LD)LOWER DIVISION	33	559	592	520	141	661
	(UD)UPPER DIVISION	24	364	388	258	143	401
	TOTAL	57	1223	1280	778	284	1062
(EDUC)EDUCATION	(LD)LOWER DIVISION	132	573	705	421	74	495
	(UD)UPPER DIVISION	186	0	186	66	203	271
	TOTAL	318	573	891	487	277	766
(HIST)HISTORY	(LD)LOWER DIVISION	75	454	529	333	74	407
	(UD)UPPER DIVISION	55	182	237	169	57	226
	TOTAL	130	1041	1171	1103	131	1234
	TOTAL	375	2827	3202	2370	647	3017

A total of 226 (169 plus 57) of the 237 students will continue in the institution next term.

57 of the 237 students will transition to other program/levels in the next term.

55 students continued in Upper Division History from the preceding term (from the same and other program/levels)

There were also 182 new enrollees in Upper Division History for a total beginning enrollment of 237.

169 of the 237 students will remain in Upper Division History next term.

Figure 19

ITER (T1) FALL 1975
REPORT (13) T H I R T E E N

....SAMPLE TEST UNIVERSITY....
NCHEMS STUDENT FLOW MODEL

PAGE 1

E N R O L L M E N T D A T A
TRANSITION FROM STUDENT PROGRAMS

FROM: (LD) LOWER DIVISION STUDENT LEVEL
(BIOL) BIOLOGY STUDENT PROGRAM
(SCI) SCIENCES BROAD PROGRAM

FROM:
(1)FALL
TO:
(2)SPRING

BROAD PROGRAM / STUDENT PROGRAM	STUDENT LEVEL		PCT. OF TOTAL	NO. OF STUDENTS	
(UNDEFINED BPC					
(MATH)MATHEMATICS	(LD	LOWER DIVISION	10.00	57	← 57 of the 571 Lower Division Biology students will transition to Lower Division Mathematics next term.
		TOTAL	10.00	57	
		TOTAL	10.00	57	
(HUM)HUMANITIES					
(HIST)HISTORY	(UD	UPPER DIVISION	10.00	57	
		TOTAL	10.00	57	
		TOTAL	10.00	57	
(SCI)SCIENCES					
(BIOL)BIOLOGY	(LD	LOWER DIVISION	50.00	286	← 286 of the 571 Lower Division Biology students will continue in Lower Division Biology next term.
	(UD	UPPER DIVISION	30.00	171	
		TOTAL	80.00	457	
		TOTAL	80.00	457	
		TOTAL	100.00	571	

Figure 20

ITER (T1) FALL 1975 ....NCHEMS TEST UNIVERSITY.... 05/24/74
REPORT (14) F O U R T E E N NCHEMS STUDENT FLOW MODEL TRANSITION MODULE (OPTION) PAGE 14

****

* E N R O L L M E N T D A T A *
* TRANSITION FROM BROAD PROGRAM *

****

* FROM * (LD) LOWER DIVISION STUDENT LEVEL *
* *
* (SCI) SCIENCES BROAD PROGRAM *

****

FROM:
(1)FALL
TO:
(2)SPRING

BROAD PROGRAM

STUDENT LEVEL	PCT. OF AL. OF TOTAL	STUDENTS
(HUM)HUMANITIES		
(UD)UPPER DIVISION	10.00	57
TOTAL	10.00	57
(SCI)SCIENCES		
(LD)LOWER DIVISION	50.10	286
(UD)UPPER DIVISION	29.90	171
TOTAL	80.00	457
TOTAL	100.00	571

57 of the 571 Lower Division Sciences students will transition to Upper Division Humanities next term.

286 of the 571 Lower Division Sciences students will continue in the Lower Division Sciences Broad Program Category next term.

Figure 21

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ITER (T1) FALL 1975
REPORT (15) F I F T E E N

....ACHPS TEST UNIVERSITY....

* E N R O L L M E N T D A T A
* SOURCE OF STUDENTS FOR STUDENT PROGRAM

FROM:
(2)SPRING
TO:
(1)FALL

BROAD PROGRAM STUDENT PROGRAM	STUDENT LEVEL	PCT. OF AC. OF TOTAL STUDENTS	
(UNDEFINED BPC			
(MATH)MATHEMATICS	(UD) UPPER DIVISION	8.40	28
	TOTAL	8.40	28
	TOTAL	8.40	28
(HUM) HUMANITIES			
(EDUC)EDUCATION	(LD) LOWER DIVISION	25.30	84
	TOTAL	25.30	84
	TOTAL	25.30	84
(SCI)SCIENCES			
(BIOL)BIOLOGY	(LD) LOWER DIVISION	51.50	171
	(UD) UPPER DIVISION	14.40	48
	TOTAL	66.30	220
	TOTAL	66.30	220
	TOTAL	100.00	332

Of the 332 students from this term that will be in Upper Division Biology next term, 28 are currently in Upper Division Mathematics this term; 84 in Lower Division Education, etc.

Figure 22

ITEM (11) FALL 1975 ....SOMEPLACE UNIVERSITY....
REPORT (16) S T A T E M N

***

APPENDIX I

Technical Notes

This Appendix provides an overview of the logic flow between the computer programs and illustrates the control record structure required to execute a typical run of the Student Flow Model.

Program Logic

Logic flow diagrams for the EDIT MODULE, HISTORY MODULE, ADMISSIONS MODULE, and TRANSITION MODULE are contained in Figures I-1, I-2, I-3, and I-4, respectively. This logic is described in more detail in the Student Flow Model SFM-IA System Documentation Technical Report 41B.

NCHEMS STUDENT FLOW MODEL SFM-IA
EDIT MODULE

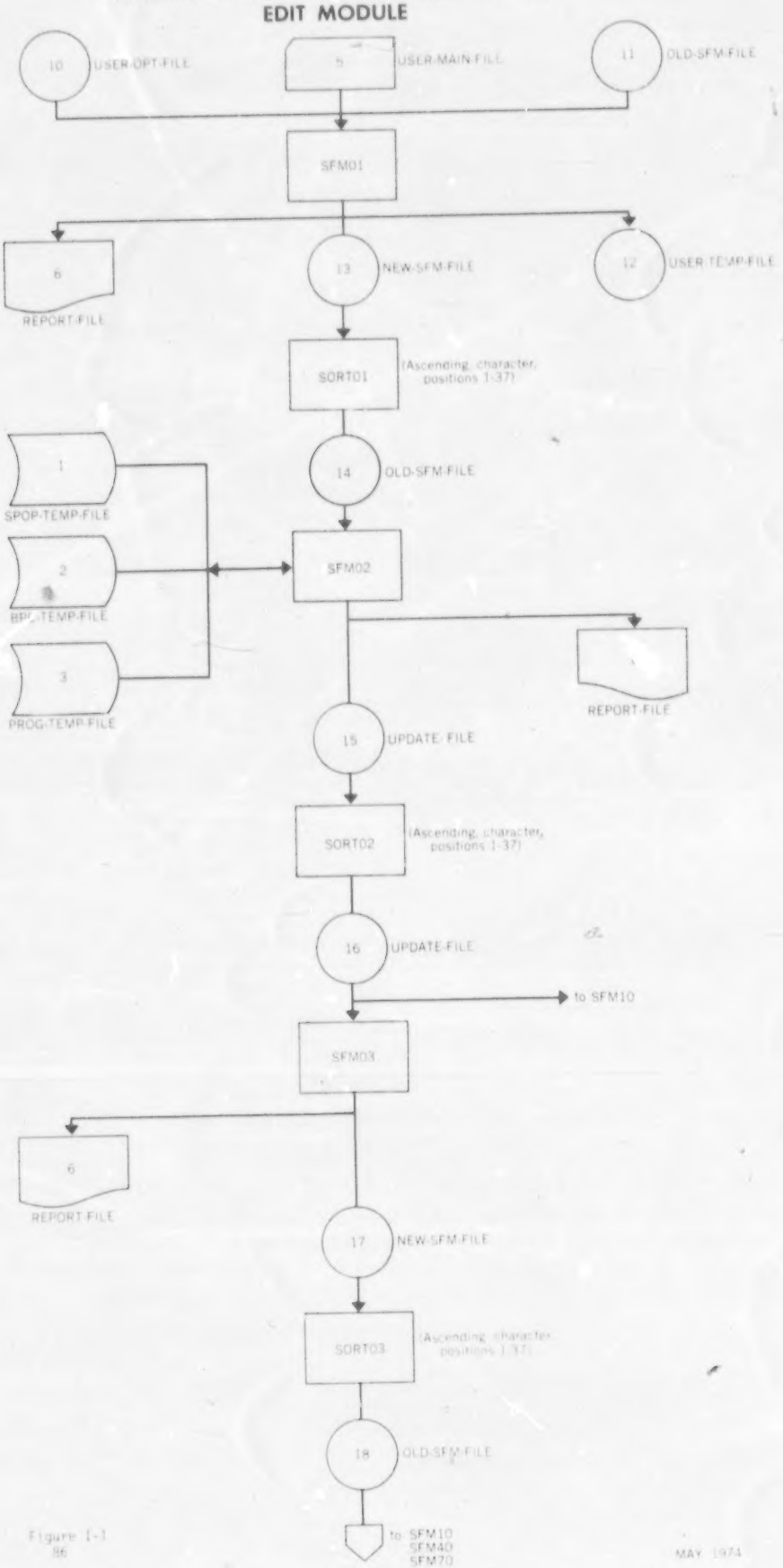


Figure I-1
86

MAY 1974

NCHEMS STUDENT FLOW MODEL SFM-IA
HISTORY MODULE

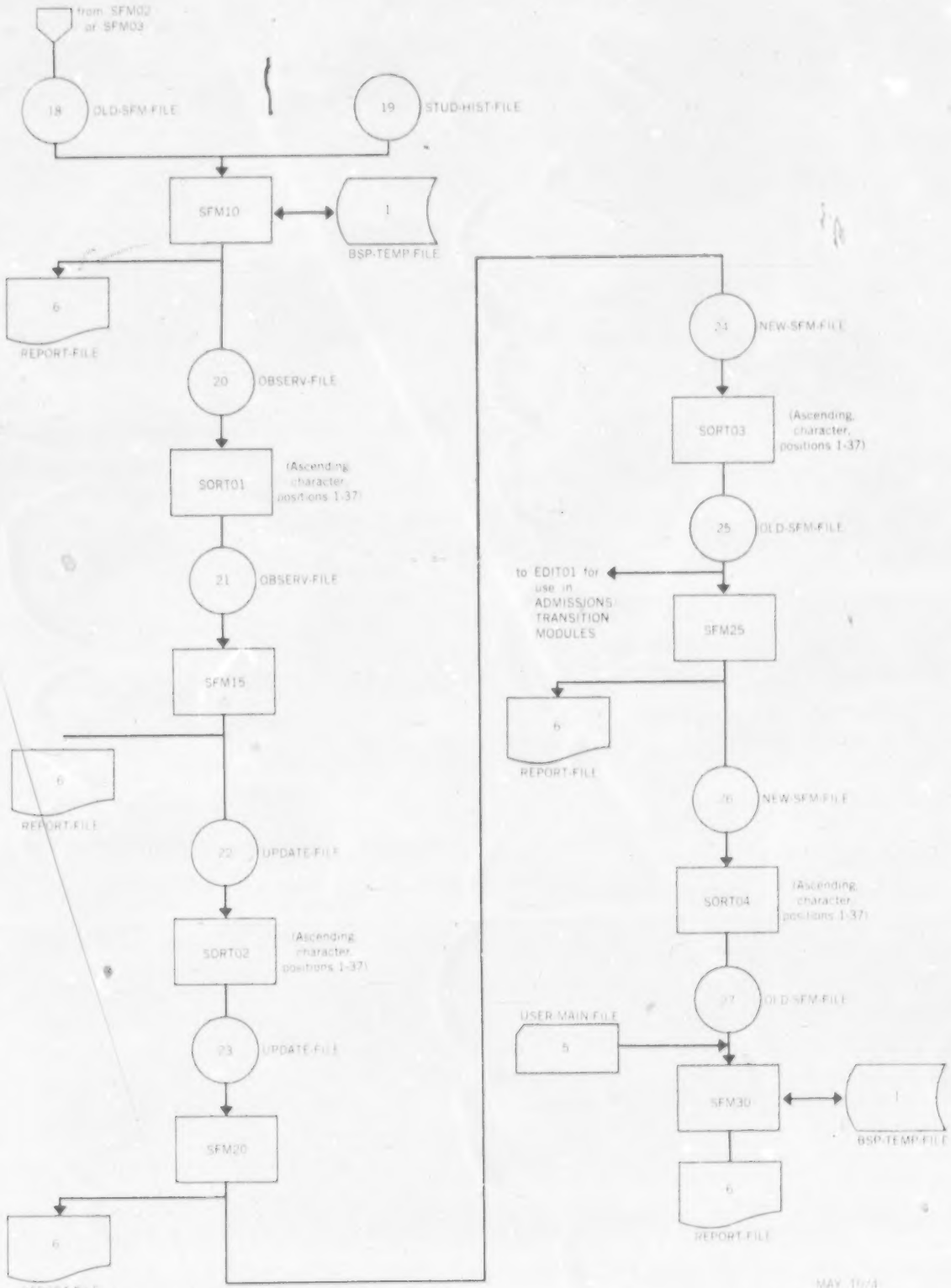


Figure 1-2
87

NCHEMS STUDENT FLOW MODEL SFM-1A
ADMISSIONS MODULE

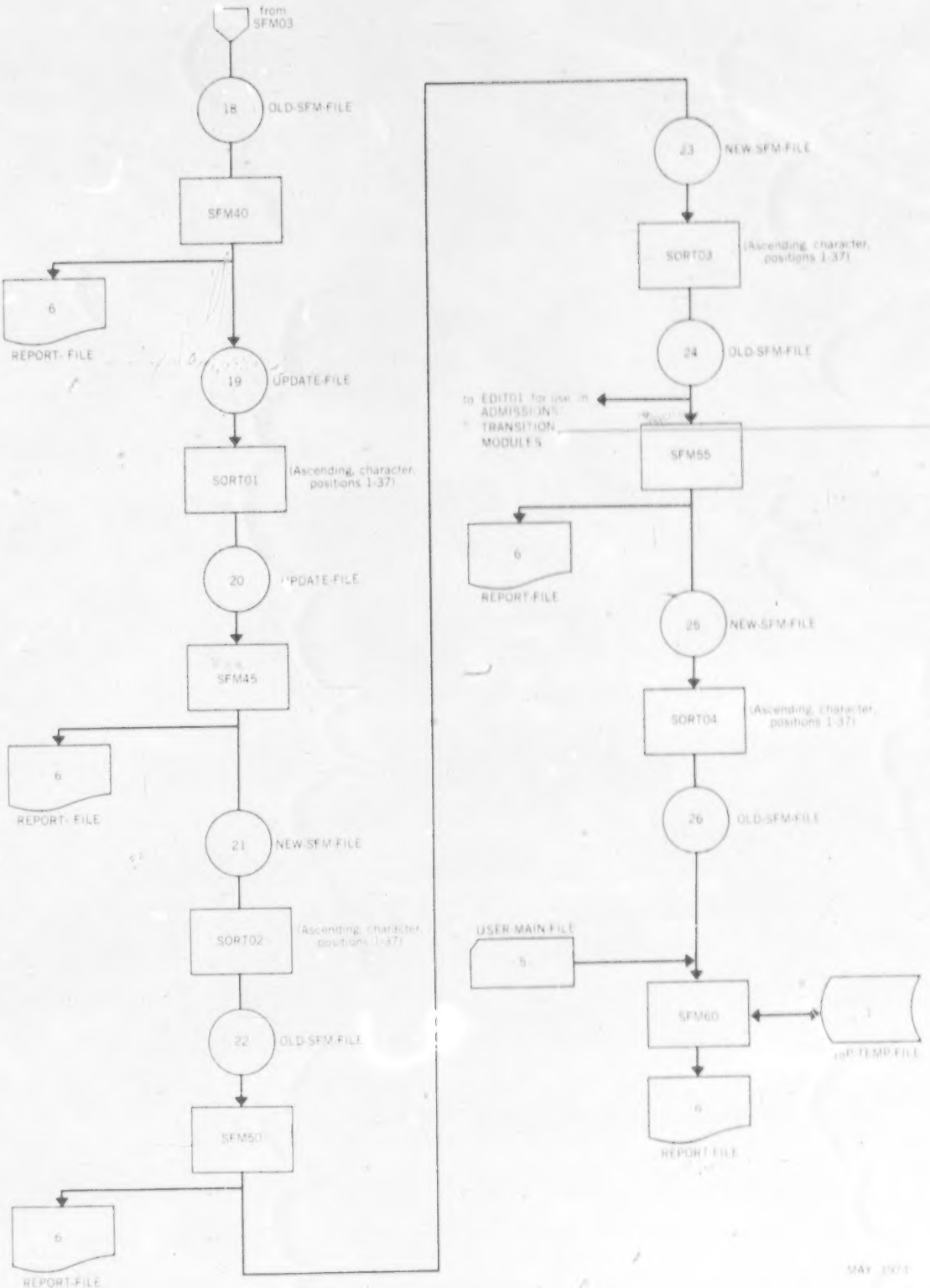
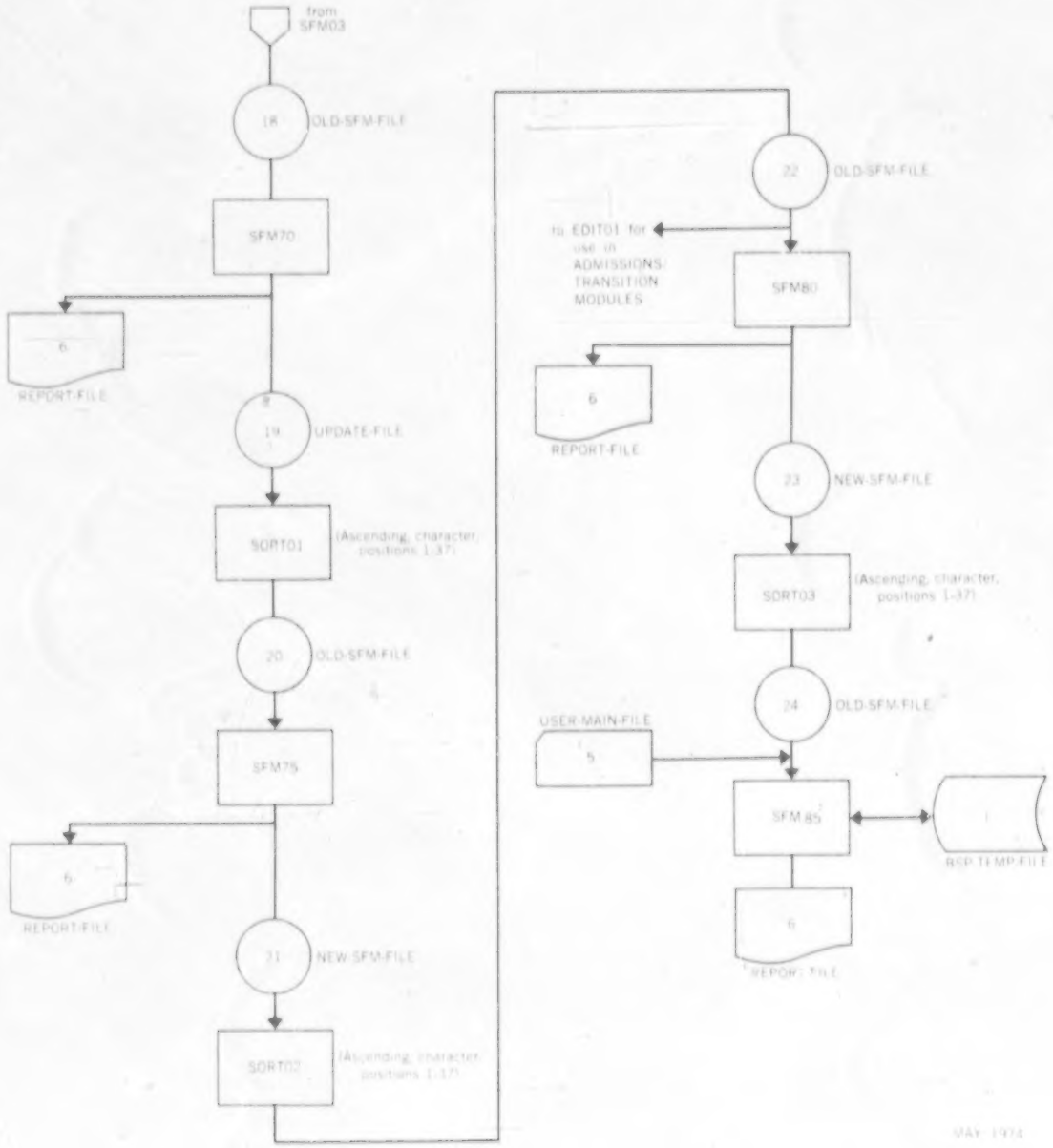


Figure 1-3

NCHEMS STUDENT FLOW MODEL SFM-IA
TRANSITION MODULE



MAY 1974

Figure 1-4
89

Typical SFM Execution Logic

Because of the flexibility of the Student Flow Model and the differing needs of users, there are a number of feasible patterns for executing the several software modules and corresponding control card structures. This section describes a typical pattern and the related control information. After the user becomes familiar with this example and the general logic of the model he should be able to construct the control information required to satisfy the institution's particular needs.

In this example, historical data patterns are developed by the HISTORY MODULE.

1. HISTORY MODULE

   Execution of the HISTORY MODULE will produce a file containing "definitions" (titles and definitions), admissions patterns for each Term (as defined on the Term Definition record, input form (8)), and transition patterns for each Term. Each of these data sets is identified by the Iteration Out field supplied on the HISTORY MODULE Control Record (input form (1a)).

If Fall and Spring Terms have been defined (as FALL and SPRG) and if the Iteration Out field in input form (1a) was specified as "AA," the file produced by the HISTORY MODULE can be thought of as shown in Figure I-5. This file and similar files described below are referred to in the system as either the OLD-SFM-FILE (if the file is supplying data to a module) or as the NEW-SFM-FILE (if the file is being created by a module).

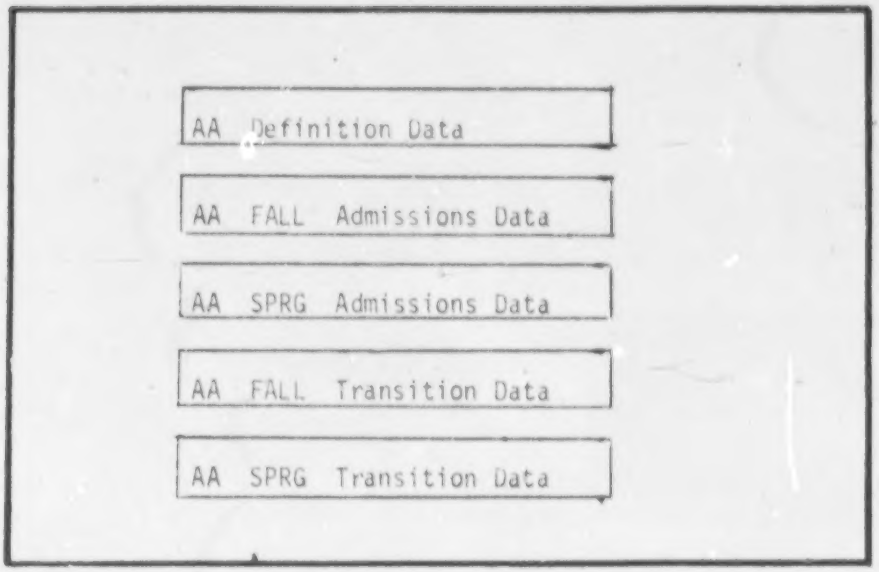


Figure I- 5

HISTORY MODULE File

2. ADMISSIONS MODULE - Fall 1973

Assume now that the second program to be run is the ADMISSIONS MODULE for Fall 1973. Figure I-6 shows values specified on the ADMISSIONS MODULE Control Record, the data from the OLD-SFM-FILE used for input, and the NEW-SFM-FILE.

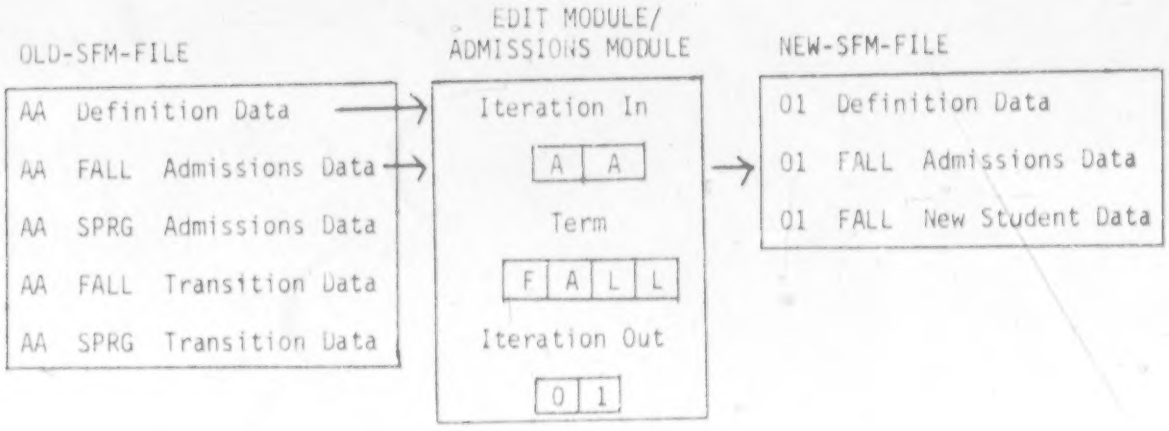


Figure I-6

ADMISSIONS MODULE Files - Fall 1973

The extraction of the required data from the OLD-SFM-FILE is actually done by the EDIT MODULE.

Note that updates to information contained in the OLD-SFM-FILE may be supplied to the ADMISSIONS MODULE. Definitional data may not be updated but the '01 FALL Admissions Data" may differ from the "AA FALL Admissions Data." For the purpose of this example we will assume that updates have been made to the Admissions Data. (Updates such as these and the Control Record for each module are usually supplied through the USER-MAIN-FILE. This file usually is assigned to the card reader.)

The "01 FALL New Student Data" contains the total number of newly enrolled students in each Program/Student Level (the information on input form (19)).

3. TRANSITION MODULE - Fall 1973

A run of the TRANSITION MODULE is the third program in this example. Figure I-7 illustrates values specified on the TRANSITION MODULE Control Record, the OLD-SFM-FILE, and the NEW-SFM-FILE.

Because input to the TRANSITION MODULE must be obtained from results of both the HISTORY MODULE and the ADMISSIONS MODULE, the NEW-SFM-FILEs produced by these modules must be concatonated* to produce a single OLD-SFM-FILE.

---

* Concatonation means to append one file to another. Because of the structure of the sort keys in the records, files also may be sorted or merged. Concatonation is usually a faster process, however, and should be used if available through the computer operating system.

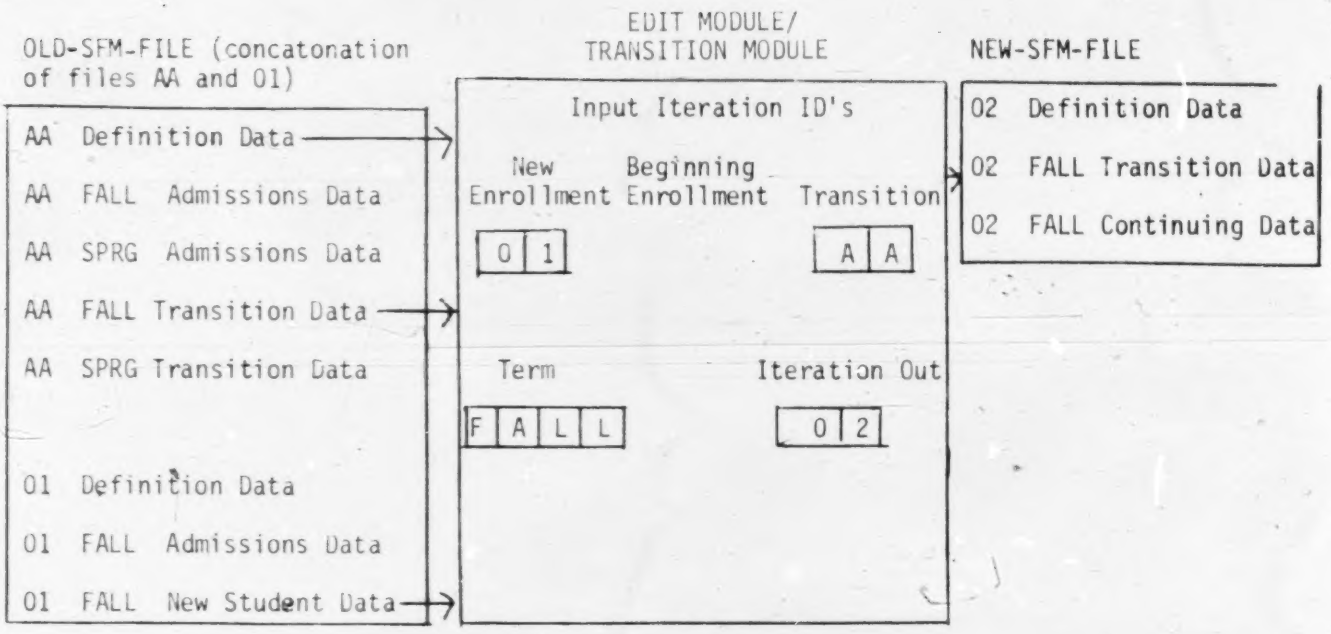


Figure I-7

TRANSITION MODULE Files - Fall 1973

For the first run of the TRANSITION MODULE, the Beginning Enrollment is supplied to the system via manually prepared input (form (18)). The Input Iteration ID for Beginning Enrollment therefore is left blank. Subsequent iterations of the TRANSITION MODULE would probably specify the ID of a previously run Transition iteration.

Again, because of updates, Transition data in NEW SFM FILE "02" may differ from the input data.

The "02 FALL Continuing Data" contains records of the students (by Program and Student Level) who will be continuing into the next term. These data are used as the beginning enrollment for the next run of the TRANSITION MODULE.

4. ADMISSIONS MODULE - Spring 1974

Execution of the ADMISSIONS MODULE for Spring 1974 is illustrated in Figure I-8.

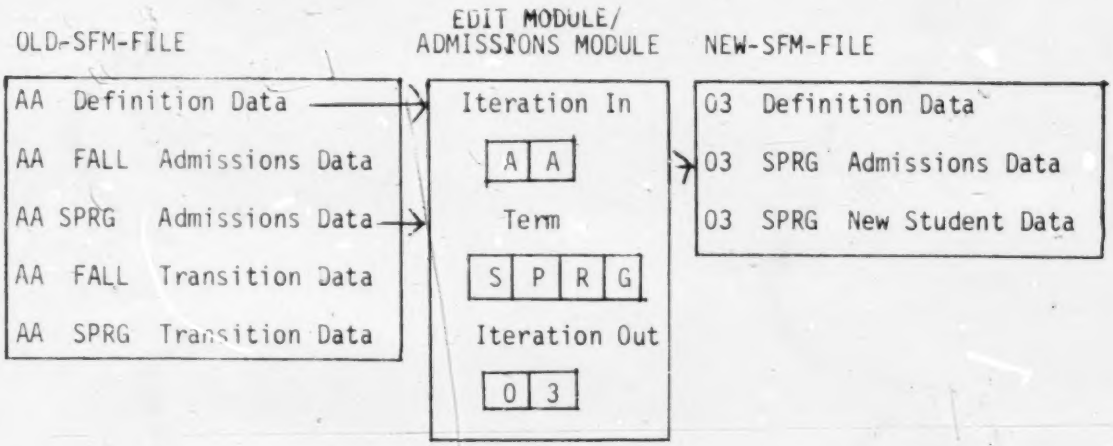


Figure I-8

ADMISSIONS MODULE Files - Spring 1974

The OLD-SFM-FILE used as input is the file produced by the HISTORY MODULE.

5. TRANSITION MODULE - Spring 1974

Figure I-9 illustrates execution of the TRANSITION MODULE for Spring 1974. Note that the OLD-SFM-FILE is a concatonation of three files.

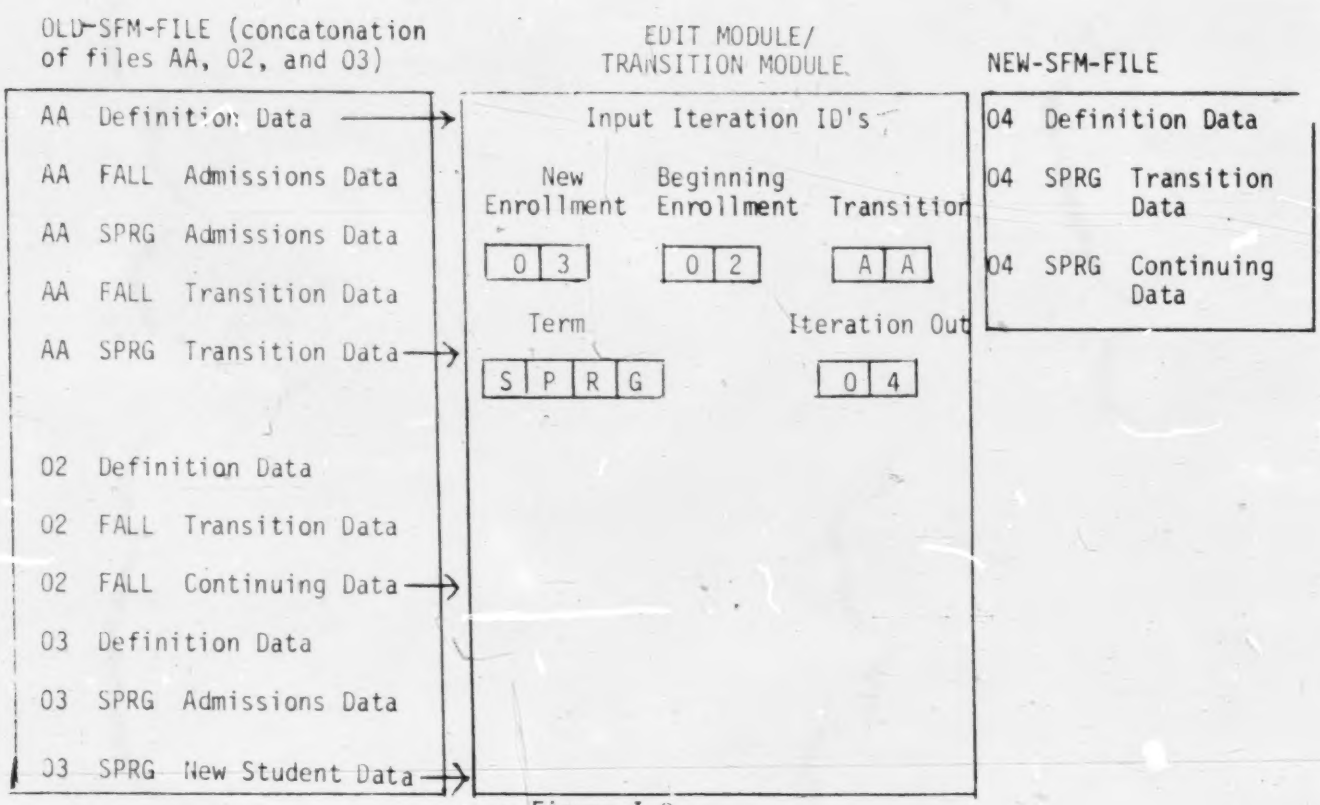


Figure I-9

TRANSITION MODULE Files - Spring 1974

6. ADMISSIONS MODULE - Fall 1974

At this point we have two different sets of data describing FALL Admissions Data. These are "AA FALL Admissions Data" and "01 FALL Admissions Data." If the updates supplied for the Fall 1973 run are to apply to subsequent Fall Terms also, the "01" iteration should be used as input. If the Fall 1973 updates reflected changes for that term only, the "AA" iteration should be used. Assume that the Fall 1973 changes are to apply to all Fall Terms. Figure I-10 depicts the execution of the ADMISSIONS MODULE for Fall 1974.

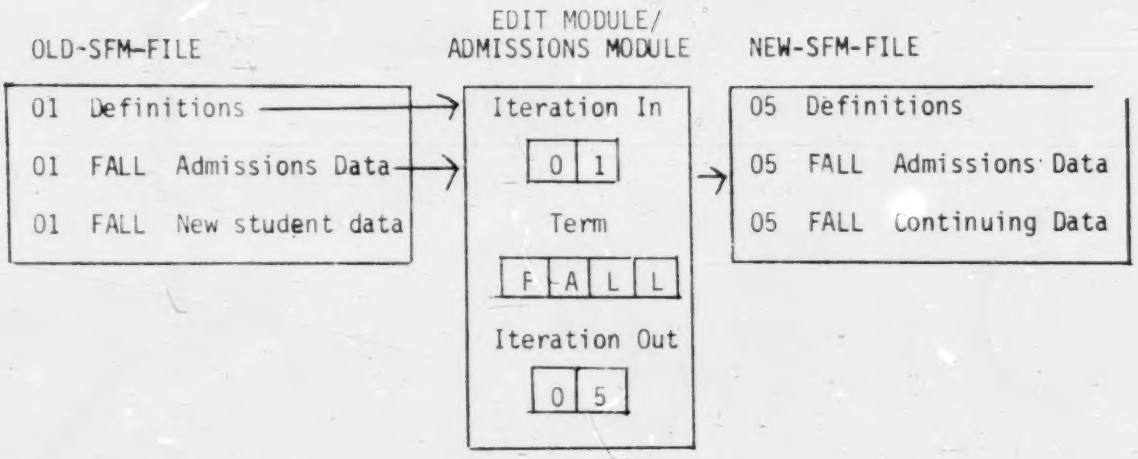


Figure I-10

ADMISSIONS MODULE Files - Fall 1974

The OLD-SFM-FILE used as input is the file produced by the FALL 1973 run of the ADMISSIONS MODULE.

Summary

The example shows that in initially establishing the desired logic flow the SFM-IA control records and the related job control language for the computer must be given careful attention. Most institutions should have to develop this structure one time only if the entire implementation process is thought out beforehand. Many institutions also will find the job control language delivered with the system to be adequate for their immediate needs.

APPENDIX II

SYSTEM MESSAGES

SYSTEM MESSAGES

A number of messages are generated by the system to inform the user of possible errors or to simply report informational items. The formats in which these messages are produced are described below.

Run Summary

Each program produces a Run Summary report which lists the number of input records, the number of records written and other program counts.

Coded System Messages

There are four severity levels of coded system messages that may be generated. These severity levels are:

W = WARNING - This type of error is not significant. However, the user should determine the cause of the error to insure desired results.

I = INFORMATIONAL - This code does not represent an error but denotes information such as an input record.

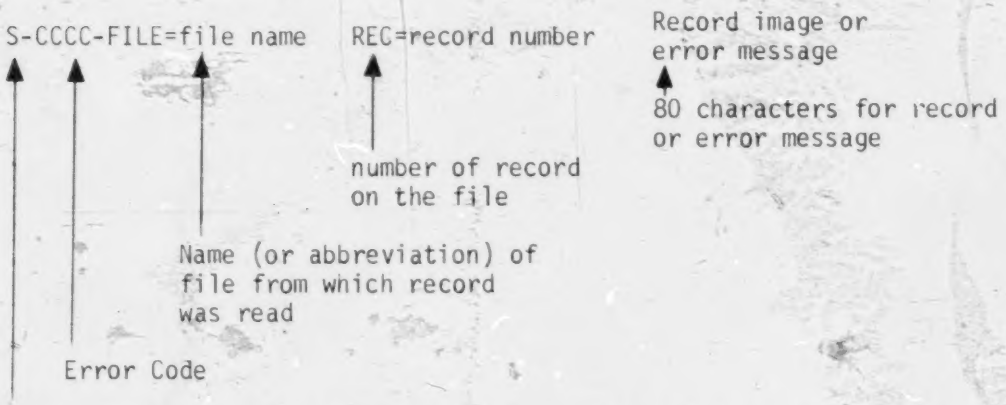
C = CONDITIONAL - This code represents a probable significant error. It may indicate omitted data or unusual calculated results.

F = FATAL - This code represents a significant error. It may indicate required data that have been omitted, unknown identifiers, non-numeric items, etc. The error is serious enough to cause immediate program termination. The presence of this code will cause suppression of remaining programs.

D = DEFERRED FATAL - This code represents a significant error. It may indicate required data that have been omitted, unknown identifiers, non-numeric items, etc. Additional processing is performed, however, to give the user additional information from the current program. As with fatal errors, execution of subsequent programs will be suppressed.

S = SYSTEM - This code represents a significant malfunction.

The general format for a coded system message is:


S-CCCC-FILE=file name
REC=record number
Record image or error message
80 characters for record or error message
number of record on the file
Name (or abbreviation) of file from which record was read
Error Code
Error Severity Level (i.e., I. W, C, D, F, D or S).

Some coded system messages are followed by a second line containing the record image or error message.

Table II-1 contains a list of coded system messages.

Table II-1

Coded System Messages

Severity	Code	Message/Meaning
S	X001	Control passed to DEFN-UPDT. Wrong data.
F	X002	Attempt to update definition-set. Not permitted.
F	X003	File out of sequence. Run terminated.
F	X004	Previous program terminated. Record which caused current program to terminate follows.
W	X005	File is empty.
S	X006	Host system error while trying to read.
S	X008	Attempt to read file at EOF.
S	X009	File open input. Attempt to open output.
S	X010	File open output. Attempt to open input.
W	X011	Error in (FILE-NAME)-DEFN-SET. (Probably a system error.)
D	X012	Too many categories defined. (Offending record follows.)
W	X013	Error in (FILE-NAME)-CNTL-SET. (Probably a system error.)
D	X014	First record is not -SFM-IA-. (Data follows.)
F	X015	File not processed by REQD. PREV. Program.
C	X016	End of file. More data expected.
W	X017	Source pop. not defined.
W	X018	Student program not defined.
W	X019	Student level not defined.
W	X020	Broad program not defined.
D	X021	Trouble with file. Paragraph name follows.
C	X023	Maximum student records read.
C	X024	Maximum student errors reached.
I	X025	Unknown category established. FILE-ID = CATEGORY, REC-NO.= ABBREV.

Severity	Code	Message/Meaning
C	X026	Invalid input record type.
D	X027	Invalid module. Must be HIST ADMS ENRL.
D	X028	Invalid option. Must be -RUN-.
D	X029	New iteration-ID cannot be blank.
D	X030	Term not specified. Must for ADMS ENRL.
W	X031	Lines per page out of range or not numeric.
W	X032	MAX-ERROR-COUNT zero or not numeric.
W	X033	MAX-STUDENT-RECORDS zero or not numeric.
D	X034	Invalid definition.
C	X035	Definition name is blank.
D	X036	Abbreviation is blank.
C	X037	Sequence blank. Abbreviation used.
D	X038	Term sequence is blank.
I	X040	Record read.
I	X041	Record written.
W	X042	Program not linked to broad program.
W	X043	Broad program to program link not made.
D	X044	Invalid module. Must be -HISTO.
D	X045	Invalid option. Must be -RPT-.
D	X046	Invalid report requested.
D	X047	Category abbreviation not defined.
D	X048	Neither -B- or -P- specified.
D	X049	Non-numeric value in numeric field.
D	X050	Neither -P- or -N- specified.
S	X051	Category not found. System error.

Severity	Code	Message/Meaning
S	X052	System failure. File advanced too far.
C	X053	Attempt to change title to spaces.
F	X054	Incorrect file passed to this program.
F	X055	Conflicting B/P specifications. Re-check input-data.
C	X057	-TERM- of data conflicts with -TERM- of iteration. Input data rejected.
D	X058	Bad SPOP on APOL record prevents B/P consistency check.
W	X059	Percentage value greater than 100 percent.
W	X060	Comment record sequence number not between 1 and 50.
D	X061	Conflicting SPP1, SPP2 data. Details in Program 60.
W	X062	Source Population did not have a -NAPL- record.

Percentage Totals

If participation and distribution percentage values (in the ADMISSIONS MODULE) and transition percentage values (in the TRANSITION MODULE) are not equal to one hundred percent, SFM60 and SFM85 (the report programs) flag these totals with an asterisk. The run summary for each program lists the total number of percentage totals so flagged and the most "deviant" percentage value.

Miscellaneous

Two other types of potential errors are reported in report programs SFM60 and SFM85.

ADMISSIONS MODULE program SFM60 may report that both SPP1 and SPP2 admissions data has been supplied for a Program/Level. The offending Program/Levels are also listed. This is a fatal error and SFM60 is then immediately terminated.

TRANSITION MODULE program SFM85 may report that transition data was not supplied for a Program/Level in which students were enrolled. The system automatically causes these students to continue in the same Program/Level in the next term.

APPENDIX III

STUDENT FLOW MODEL SFM-IA

Input Forms

RECORD IDENTIFIER

S	F	M	-	I	A
1	2	3	4	5	6

STUDENT FLOW MODEL

CONTROL RECORD—HISTORY MODULE

Required | History Module

PAGE ___ OF ___

DATE _____

1a

| Module | | | | Option | | | Iteration Out | | Iteration Name | | | |

RECORD IDENTIFIER

S	F	M	-	I	A
1	2	3	4	5	6

STUDENT FLOW MODEL

CONTROL RECORD–ADMISSIONS MODULE

Required | **Admissions Module**

PAGE ____ OF ____

DATE _____

(1b)

Module

A	D	M	S
7	8	9	10

Option

R	U	N
11	12	13

Iteration Out

16	17

Term Abbrev.

19	20	21	22

Iteration Year (Optional)

23	24

Iteration Name

25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40				

Date

41	42	43	44	45	46	47	48

Optional Data File

49

Lines Per Page

50	51

Input Iteration ID

52	53

Sequence

73	74	75	76	77	78	79	80	

COMMENTS

PURPOSE: This input specifies an execution of the ADMISSIONS MODULE.

ITERATION OUT: This data item identifies the set of data to be created and saved for use by the TRANSITION MODULE.

TERM ABBREV.: Term identifier which is combined with ITERATION OUT. Must correspond to one of the term abbreviations on input form (7).

ITERATION YEAR: Optional identifier which is used in report headings by programs that use the data created by this run.

OPTIONAL DATA FILE: Enter 'Y' if optional input data file is to be read.

LINES PER PAGE: Enter line per page (30-39) desired on reports. (Default—55)

INPUT ITER ID: Enter ID of previously run iteration that contains source popul. tion participation data, broad program category distribution data, etc. This may be data produced by the HISTORY MODULE or by a previous run of the ADMISSIONS MODULE. This data will be read from the OLD-SFM-FILE.

RECORD IDENTIFIER

S	F	M	-	I	A
1	2	3	4	5	6

STUDENT FLOW MODEL

CONTROL RECORD–TRANSITION MODULE

Required — **Transition Module**

PAGE ____ OF ____

DATE _____

(1c)

Module	Option	Iteration Out	Term Abbrev.	Iteration Year (Optional)	Iteration Name
T R A N	R U N				
7 8 9 10	11 12 13	16 17	19 20 21 22	23 24	25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

Date	Optional Data File	Lines Per Page	Input Iteration ID's: New Enrollment	Beginning Enrollment	Transitions
41 42 43 44 45 46 47 48	49	50 51	52 53	54 55	56 57

Sequence

73 74 75 76 77 78 79 80

COMMENTS

PURPOSE: This input specifies an execution of the TRANSITION MODULE.

ITERATION OUT: This data item identifies the set of data to be created and saved for later use.

TERM ABBREV.: Term identifier which is combined with ITERATION OUT. Must correspond to one of the term abbreviations on input form (7).

ITERATION YEAR: Optional identifier which is used in report headings by programs that use the data created by this run.

OPTIONAL DATA FILE: Enter 'Y' if optional input data file is to be read.

LINES PER PAGE: Enter lines per page (30-39) desired on reports. (Default—55)

INPUT ITERATION ID'S: Enter ID's of previously run iterations that contain desired input data. New enrollments field specifies an output of ADMISSIONS MODULE. Beginning enrollment field refers to manually prepared data or to previous run of TRANSITION MODULE. Transitions field refers to HISTORY MODULE output or previous run of TRANSITION MODULE. This data will be read from the OLD-SFM-FILE.

RECORD IDENTIFIER

S	F	M	-	I	A
1	2	3	4	5	6

STUDENT FLOW MODEL

REPORT CONTROL RECORD

Required | All Modules

PAGE ____ OF ____

DATE _____

1d

Module				Option			Report Number		Lines Per Page	
				R	P	T				
7	8	9	10	11	12	13	14	15	50	51

Sequence

73	74	75	76	77	78	79	80

COMMENTS

PURPOSE: This input requests one or more reports to be produced and permits overriding the default lines per page value.

MODULE: Enter 'HIST', 'ADMS' or 'TRAN' to indicate the module reports are being requested from.

REPORT NUMBER: Enter number of reports requested. The HISTORY MODULE produces reports 1-7, the ADMISSIONS MODULE reports 8-11 and the TRANSITION MODULE reports 12-16. If REPORT NUMBER contains '**' all reports for the module will be produced.

LINES PER PAGE: Enter lines per page (30-99) desired on reports. (Default—55)

NOTE: Prepare one input record for each report requested (unless the '**' REPORT NUMBER option is used).

RECORD IDENTIFIER

C	O	M	M
1	2	3	4

STUDENT FLOW MODEL

COMMENT RECORD

Optional | All Modules

PAGE ____ OF ____

DATE _____

(2)

Sequence Number

7 8

Comment

9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38

39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68

Sequence

73 74 75 76 77 78 79 80

COMMENTS

Sequence Number: The comment records will be sorted on the SEQUENCE NUMBER. If the SEQUENCE NUMBER is blank, the sorting sequence will be the order of input. Up to fifty comment records may be supplied. Sequence numbers must be between 1 and 50, inclusive.

Comment: Remarks entered in positions 9-68 apply to the iteration being created. These remarks will be printed preceding the reports produced by the system.

RECORD IDENTIFIER

I	N	S	T
1	2	3	4

STUDENT FLOW MODEL

INSTITUTION RECORD

Optional | All Modules

PAGE ____ OF ____

DATE ____

(3)

Institution Name

7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36

Sequence

73 74 75 76 77 78 79 80

COMMENTS

Enter institution name (centered)

APRIL 1974

RECORD IDENTIFIER

T	I	T	L
1	2	3	4

STUDENT FLOW MODEL

TITLE RECORD

Optional | All Modules

PAGE ____ OF ____

DATE _____

(4)

Category (7 8 9 10)

Category Title (11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30)

Sequence (73 74 75 76 77 78 79 80)

COMMENTS

PURPOSE: This input provides optional titles for the categories shown below. If a title is not supplied for a category, the default title is used.

CATEGORY	Default Title
SPOP	SOURCE POPULATION
BPCD	BROAD PROGRAM
PROG	STUDENT PROGRAM
STLV	STUDENT LEVEL
NEWS	NEW STUDENTS
EXIT	EXITING STUDENTS

NOTE: In some instances these titles will be truncated to 12 characters.

RECORD IDENTIFIER

D	E	F	N
1	2	3	4

STUDENT FLOW MODEL

DEFINITION/CONVERSION RECORD

Required | **All Modules**

PAGE ____ OF ____

DATE _____

(5)

Category	Definition Name	Definition Abbreviation	Definition Sequence Value (Optional)
7 8 9 10	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	27 28 29 30	31 32 33 34

Value On Student-History-File (used only for History Module)

35 36 37 38 39 40 41 42	43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58	59 60 61 62 63 64 65 66

Sequence

73 74 75 76 77 78 79 80

COMMENTS

PURPOSE: This input provides the system with names and abbreviations of the categories listed below, and for the HISTORY MODULE only, the values on the STUDENT-HISTORY-FILE that convert to each defined category. These labels are used by the system for linking and identifying data elements for calculating and/or reporting.

CATEGORY	DATA	MAXIMUM NUMBER*
SPOP	Source Population	900
STLV	Student Level	15
EXIT	Exiting Category	900

DEFINITION ABBREVIATION: This data item may be alphabetic or numeric. It supplies the system with the codes which will be used to identify Source Populations, Student Levels, and Exiting Categories in the user data.

DEFINITION SEQUENCE VALUE: This data item may be alphabetic or numeric. It is used to explicitly define the sorting sequence for each of the above data categories. If left blank, the abbreviation field will be used as the sequence value.

NOTE:
- Multiple DEFN records may be used to enter values assigned to any one Source Population, Student Level or Exiting Category.
- HISTORY MODULE only: If one of the value fields for a source population record contains "$$ ELSE" (left justified) all source population elements on the STUDENT-HISTORY-FILE not otherwise defined will be assigned to the source population specified by the definition abbreviation. The same code may be used to assign otherwise undefined student level elements.

* Maximum number of file values for category when executing History Module.

RECORD IDENTIFIER

B	P	C	D
1	2	3	4

STUDENT FLOW MODEL

BROAD PROGRAM CATEGORY DEFINITION

Required | All Modules

PAGE ____ OF ____

DATE _____

(6)

Broad Program Category Name

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Broad Program Category Abbreviation

27 28 29 30

Broad Program Category Sequence Value (Optional)

32 33 34 35

Consists of Programs:

37 38 39 40

42 43 44 45

47 48 49 50

52 53 54 55

57 58 59 60

62 63 64 65

67 68 69 70

Sequence

73 74 75 76 77 78 79 80

COMMENTS

PURPOSE: This input provides the system with names and abbreviations for Broad Program Categories. These labels are used by the system for linking and identifying data elements for calculating and/or reporting.

BROAD PROGRAM CATEGORY ABBREVIATION: This data item may be alphabetic or numeric. It supplies the system with the codes which will be used to identify Broad Programs in the user data.

BROAD PROGRAM CATEGORY SEQUENCE VALUE (OPTIONAL): This data item may be alphabetic or numeric. It is used to explicitly define the sorting sequence of the Broad Program Categories. If left blank, the abbreviation field will be used as the sequence value.

CONSISTS OF PROGRAMS: Enter the abbreviation for programs that are in the broad program category. Program abbreviations must be defined on coding form (7)

NOTE: Multiple BPCD records may be used to enter programs asigned to any one Broad Program Category.

RECORD IDENTIFIER

P	R	O	G
1	2	3	4

STUDENT FLOW MODEL

PROGRAM TITLE / CONVERSION RECORD

Required | **All Modules**

PAGE ____ OF ____

DATE _____

(7)

Program Name

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Program Abbreviation

27 28 29 30

Program Sequence Value (Optional)

31 32 33 34

Value on Student-History-File (use for Historly Module only)

35 36 37 38 39 40 41 42

43 44 45 46 47 48 49 50

51 52 53 54 55 56 57 58

59 60 61 62 63 64 65 66

Sequence

73 74 75 76 77 78 79 80

COMMENTS

PURPOSE: This input provides the system with names and abbreviations for program titles. These labels are used by the system for linking and identifying data elements for calcuating and/or reporting.

PROGRAM ABBREVIATION: This data item may be alphabetic or numeric. It supplies the system with the codes which will be used when identifying programs within the user data.

PROGRAM SEQUENCE VALUE (OPTIONAL): This data item may be alphabetic or numeric. It is used to explicity define the sorting sequence of the programs. If left blank, the abbreviation field will be used as the sequence value.

NOTE:
- Multiple PROG records may be used to enter VALUES ON STUDENT-HISTORY-FILE for any one program.
- HISTORY MODULE only: If one of the value fields contains "SS ELSE" (left justified) all program elements on the STUDENT-HISTORY-FILE not otherwise defined will be assigned to the program on this record.

RECORD IDENTIFIER

T	E	R	M
1	2	3	4

STUDENT FLOW MODEL

TERM DEFINITION/CONVERSION RECORD

Required | **All Modules**

PAGE ____ OF ____

DATE _____

(8)

Term Name

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Term Abbreviation

27 28 29 30

Sequence Number

34

Term Values on Student-History-File (use for History Module only)

35 36 37 | 39 40 41 | 43 44 45 | 47 48 49 | 51 52 53

55 56 57 | 59 60 61 | 63 64 65 | 67 68 69

Sequence

73 74 75 76 77 78 79 80

COMMENTS

PURPOSE: This input provides the system with the names and abbreviations for the terms included in the academic year.

TERM ABBREVIATION: This data item may be alphabetic or numeric. It supplies the system with the codes which will be used by the system when identifying terms within the user data.

TERM SEQUENCE: This data item specifies the order in which the defined terms occur during the period of time modeled. The term should be numbered in ascending order within the academic year. This item must be numeric and values supplied must be consecutive. Value entered must be 1, 2, 3, or 4.

EXAMPLE:

TERM NAME	TERM ABBREVIATION	TERM SEQUENCE
Fall	FALL	1
Spring	SP	2

VALUES ON STUDENT-HISTORY-FILE: These are the year term identifiers which appear in positions 16-18 of the student records. Only those records which have identifiers which match those specified on TERM cards will be recognized. Up to 15 term values may be specified.

STUDENT FLOW MODEL

STUDENT HISTORY RECORD—Entering Student

History Module

PAGE ____ OF ____

DATE _____

(9)

| Student ID | | |

STUDENT FLOW MODEL

STUDENT HISTORY RECORD—Continuing Student

History Module

PAGE ____ OF ____

DATE _____

(10)

| Student ID | | |

STUDENT FLOW MODEL

STUDENT HISTORY RECORD—Exiting Student

History Module

PAGE ____ OF ____

DATE _____

(11)

Student ID

1	2	3	4	5	6	7	8	9	10

E	X	I	T	
11	12	13	14	15

Term That Student Exits

16	17	18

Program Left

19	20	21	22	23	24	25	26	

Student Level Left

27	28	29	30	31	32	33	34	

Exiting Category

38	39	40	41	42	43	44	45	

COMMENTS

PURPOSE: This input provides an historic observation of a student leaving the institution.

STUDENT ID: Enter alphanumeric student identification.

TERM THAT STUDENT EXITS: Enter abbreviation for the last term that student was enrolled. Entry must correspond to a term value provided on input form (8).

PROGRAM LEFT:
STUDENT LEVEL LEFT: Enter program and student level in which student was enrolled in "Term that student EXITS".

EXITING CATEGORY: Enter exiting category that student entered. Entry must correspond to an exiting value provided on input form (5).

RECORD IDENTIFIER

N	A	P	L
1	2	3	4

STUDENT FLOW MODEL

NEW APPLICANT ESTIMATES

Required if (13) is Used

Admissions Module

PAGE ____ OF ____

DATE _____

(12)

Term Abbreviation	Source Population Abbreviation	Estimated Number of Applicants	Source Population Abbreviation	Estimated Number of Applicants
7 8 9 10	11 12 13 14	15 16 17 18 19 20	21 22 23 24	25 26 27 28 29 30
	31 32 33 34	35 36 37 38 39 40	41 42 43 44	45 46 47 48 49 50
	51 52 53 54	55 56 57 58 59 60	61 62 63 64	65 66 67 68 69 70

Sequence

73 74 75 76 77 78 79 80

COMMENTS

PURPOSE: This data item provides the system with the estimated number of new applicants from each Source Population. For a given term and Source Population either (12) and (13) or else (14) is used.

TERM: This data item must be consistent with the term being executed as specified on the control record SFM-IA.

ESTIMATED NUMBER OF APPLICANTS: Must be a right-justified numeric value. More than one record may be supplied if necessary.

RECORD IDENTIFIER

S	P	P	1
1	2	3	4

STUDENT FLOW MODEL

SOURCE POPULATION PARTICIPATION – RECORD 1

Required if (12) is Used

Admissions Module

PAGE ____ OF ____

DATE _____

(13)

Term Abbreviation — 7 8 9 10

Source Population Abbreviation — 11 12 13 14

Eliminate Existing Data — 15

Specify Distribution To BPC or Program — B/P — 16

Students Go To:

BPC or Program Abbreviation	Student Level Abbreviation	Percentage	Sequence
17 18 19 20	21 22 23 24	25 26 27 28 29	73 74 75 76 77 78 79 80
30 31 32 33	34 35 36 37	38 39 40 41 42	
43 44 45 46	47 48 49 50	51 52 53 54 55	
56 57 58 59	60 61 62 63	64 65 66 67 68	

COMMENTS

PURPOSE: This data item describes the Broad Program Categories (or Programs) that students from a Source Population apply to for a given term.

TERM: This data item must be consistent with the term being executed as specified on the control record SFM-1A.

ELIMINATE EXISTING DATA: Enter 'Y' to delete all previous data for this Source Population and term.

SPECIFY DISTRIBUTION TO PBC OR PROGRAM: Enter: 'B'—Distribution to Broad Program Categories
'P'—Distribution to Programs

NOTE:

- For a given term and Source Population all students must go either to Broad Program Categories or else directly to Programs.
- See form (12) which is used in conjunction with this form.
- The sum of the percentages for a source population and term must total 100.00% .
- This record is generated by the HISTORY MODULE.

RECORD IDENTIFIER

S	P	P	2
1	2	3	4

STUDENT FLOW MODEL

SOURCE POPULATION PARTICIPATION—Record 2

Not Required if (12) & (13) are Used | Admissions Module

PAGE ____ OF ____

DATE _____

(14)

Term Abbreviation: ☐☐☐☐ (7 8 9 10)

Source Population Abbreviation: ☐☐☐☐ (11 12 13 14)

Eliminate Existing Data: ☐ (15)

Specify Distribuation To BPC or Program: B/P ☐ (16)

Students Go To:

BPC or Program Abbreviation	Student Level Abbreviation	Number	Sequence
☐☐☐☐ (17 18 19 20)	☐☐☐☐ (21 22 23 24)	☐☐☐☐☐ (25 26 27 28 29)	☐☐☐☐☐☐☐☐ (73 74 75 76 77 78 79 80)
☐☐☐☐ (30 31 32 33)	☐☐☐☐ (34 35 36 37)	☐☐☐☐☐ (38 39 40 41 42)	
☐☐☐☐ (43 44 45 46)	☐☐☐☐ (47 48 49 50)	☐☐☐☐☐ (51 52 53 54 55)	
☐☐☐☐ (56 57 58 59)	☐☐☐☐ (60 61 62 63)	☐☐☐☐☐ (64 65 66 67 68)	

COMMENTS

PURPOSE: This record establishes fixed estimates of new applicants from a Source Population for each Broad Program Category or Program. For a given term and source population either (12) and (13) or else (14) is used.

TERM: This data item must be consistent with the term being executed as specified on the control record.

ELIMINATE EXISTING DATA: Enter 'Y' to delete all previous data for this source population and term.

SPECIFY DISTRIBUTON TO BPC OR PROGRAM: Enter: 'B'—Distribution to Broad Program Categories.
'P'—Distribution to Programs.

NUMBER: Must be right-justified.

NOTE: • For a given term and Source Population, all students must go either to Broad Program Categories or else directly to Programs.

RECORD IDENTIFIER

A	P	O	L
1	2	3	4

STUDENT FLOW MODEL

ADMISSIONS POLICY / NO SHOW RATE

Optional | **Admissions Module**

PAGE ____ OF ____

DATE _____

(15)

Term Abbreviation	Source Population Abbreviation	Specify BPC or Program	Broad Program or Program Abbreviation	Student Level Abbreviation	Specify % or Number	Maximum Percentage or Number To Be Admitted	No Show Percentage
7 8 9 10	11 12 13 14	B/P 15	16 17 18 19	20 21 22 23	P/N 24	25 26 27 28 29 30	31 32 33 34
			35 36 37 38	39 40 41 42	43	44 45 46 47 48 49	50 51 52 53
			54 55 56 57	58 59 60 61	62	63 64 65 66 67 68	69 70 71 72

Sequence

73 74 75 76 77 78 79 80

COMMENTS

PURPOSE: This data item specifies the percentage or maximum number of students to be admitted from each Source Population and term.

TERM: This data item must be consistent with the term being executed as specified on the control record.

SPECIFY BPC OR PROGRAM: This data item must be identical to the distribution specified for the Source Population Subset on input forms (12) and (13).
'B'—Distribution to Broad Program Categories 'P'—Distribution to Programs (Defaults to 'P')

SPECIFY % OR NUMBER TO BE ADMITTED:
'P'—Percentage to be admitted 'N'—Number to be admitted

NOTE:
- Enter *either* a percentage or a maximum number to be admitted to a given student level within a Broad Program Category or Program.
- Default admission percentage is 100%.
- Default no show percentage is 0%.

RECORD IDENTIFIER

D	I	S	T
1	2	3	4

STUDENT FLOW MODEL

DISTRIBUTION FROM BROAD PROGRAM CATEGORIES

Optional* | Admissions Module

PAGE ____ OF ____

DATE _____

16

Term Abbreviation	Broad Program Category Abbreviation	Student Level Abbreviation	Eliminate Existing Data	Students To Go: Program Abbreviation	Percentage	Program Abbreviation	Percentage
7 8 9 10	11 12 13 14	15 16 17 18	19	20 21 22 23	24 25 26 27	28 29 30 31	32 33 34 35
				36 37 38 39	40 41 42 43	44 45 46 47	48 49 50 51
				52 54 54 55	56 57 58 59	60 61 62 63	64 65 66 67

Sequence

73 74 75 76 77 78 79 80

COMMENTS

PURPOSE: This data item specifies the distribution of Students from a Broad Program Category and level to Programs.

TERM: This data item must be consistent with the term being executed as specified on the control record.

ELIMINATE EXISTING DATA: Enter 'Y' to delete all previous data (from old iteration or history module) for the Broad Program Category and term specified on this record.

NOTE:
- The sum of the percentages for a Broad Category and term must total 100%.
- This record is generated by the HISTORY MODULE.

*Required if (12) or (13) specify distribution from a source Population to Broad Program Categories.

RECORD IDENTIFIER

B	E	N	R
1	2	3	4

STUDENT FLOW MODEL

BEGINNING ENROLLMENT RECORD

Optional | **Transition Module**

PAGE ____ OF ____

DATE _____

(17)

Term Abbreviation	Program Abbreviation	Student Level Abbreviation	Number
7 8 9 10	11 12 13 14	15 16 17 18	19 20 21 22 23
	24 25 26 27	28 29 30 31	32 33 34 35 36
	37 38 39 40	41 42 43 44	45 46 47 48 49
	50 51 52 53	54 55 56 57	58 59 60 61 62

Sequence

73 74 75 76 77 78 79 80

COMMENTS

PURPOSE: This data item specifies the beginning enrollment for a term in a Program and student level. This input is typically used only for the first term to be processed.

TERM: This data item must be consistent with the term being executed as specified on the control record.

NUMBER: Must be right-justified.

NOTE:
- If beginning enrollment in a program and student level for a term is not specified, a value of zero is used.
- While this input is optional, most users of the system will require beginning enrollment values to be entered.

RECORD IDENTIFIER

N	E	N	R
1	2	3	4

STUDENT FLOW MODEL

NEW ENROLLEES RECORD

Optional | Transition Module

PAGE ___ OF ___

DATE _____

18

Term Abbreviation	Program Abbreviation	Student Level Abbreviation	Number	
7 8 9 10	11 12 13 14	15 16 17 18	19 20 21 22 23	
	24 25 26 27	28 29 30 31	32 33 34 35 36	
	37 38 39 40	41 42 43 44	45 46 47 48 49	
	50 51 52 53	54 55 56 57	58 59 60 61 62	Sequence 73 74 75 76 77 78 79 80

4.30

COMMENTS

PURPOSE: This data item specifies the number of new enrollees at the beginning of a term for a Program and Student Level.

TERM: This data item must be consistent with the term being executed as specified on the control record.

NUMBER: Must be right-justified.

NOTE:
- If new enrollees in a program and student level for a term is not specified, a value of zero is used.
- This record is generated by the ADMISSIONS MODULE.

RECORD IDENTIFIER

T	R	A	N
1	2	3	4

STUDENT FLOW MODEL

PROGRAM/STUDENT LEVEL TRANSITION PATTERN

Required | **Transition Module**

PAGE ____ OF ____

DATE _____

(19)

Term Abbreviation	Program Abbreviation	Student Level	Eliminating Existing Data
7 8 9 10	11 12 13 14	15 16 17 18	19

Students Go To:

Program or Exiting Category *	Student Level	Percentage	Program or Exiting Category *	Student Level	Percentage
20 21 22 23	24 25 26 27	28 29 30 31	32 33 34 35	36 37 38 39	40 41 42 43
44 45 46 47	48 49 50 51	52 53 54 55	56 57 58 59	60 61 62 63	64 65 66 67

Sequence: 73 74 75 76 77 78 79 80

COMMENTS

PURPOSE: This data item specifies the transition probabilities from programs and student levels in one term to programs and student levels in the next term or to exiting categories.

TERM: This data item must be consistent with the term being executed as specified on the control record.

ELIMINATE EXISTING DATA: Enter 'Y' to delete all previous data for the Term, Program and Student Level specified on this record.

NOTE:
- The sum of the percentages for a Term, Program and Student Level must total 100%.
- This record is generated by the HISTORY MODULE.

* Student Level is ignored for an exciting category.

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3.5C;77A;GDIX1CIE;28A163